



28.

#### PROCEEDINGS & TRANSACTIONS

OF THE

#### CROYDON

# NATURAL HISTORY AND SCIENTIFIC

SOCIETY.

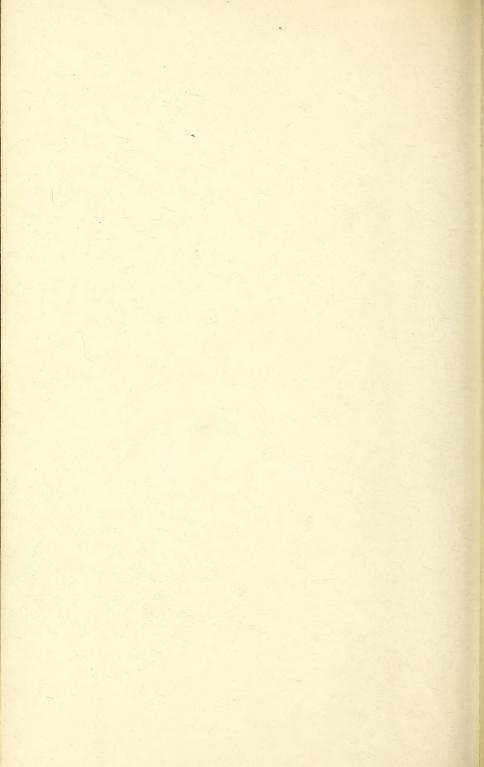
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#### PROCEEDINGS

OF

# THE CROYDON NATURAL HISTORY AND SCIENTIFIC SOCIETY.

1906-1907.

#### Thirty-seventh Annual Meeting,

Held at the Public Hall, Croydon, January 15th, 1907.

The President, W. F. STANLEY, F.R.A.S., F.G.S., F. Phy. Soc. (Lon.), in the chair.

The Council's Report and the Statement of Accounts for 1906 were read and approved.

The following gentlemen were elected Officers of the Society for the ensuing year:—

President.—Baldwin Latham, M.I.C.E., F.G.S., &c.

Vice-Presidents.—F. Campbell-Bayard, LL.M., F.R.Met.Soc.; J. Edmund Clark, B.A., B.Sc., F.G.S.; W. F. Stanley, J.P., F.G.S.

Hon. Curator .- N. F. Robarts, F.G.S.

Hon. Lanternist .- J. H. BALDOCK, F.C.S.

Hon. Librarian.—Alfred Roods.

Hon. Treasurer.—F. J. TOWNEND, 11, Park Hill Rise.

Council.—T. F. CLARKE; H. T. CROSFIELD, B.A.; Dr. T. A. DUKES, B.Sc.; Dr. H. C. MALE; H. T. MENNELL, F.L.S.; Dr. H. FRANKLIN PARSONS, F.G.S.; W. WHITAKER, B.A., F.R.S., F.G.S.

Hon. Secretary. — George W. Moore, 15, Dornton Road, South Croydon.

Anthropological and Archæological Committee.—T. F. CLARKE, Lurline, Blenheim Crescent; H. C. COLLYER, 33, Oliver Grove, South Norwood; J. M. Hobson, M.D., B.Sc., Woodside Court, Croydon; A. J. Hogg, 43, Whitworth Road, South Norwood; E. LOVETT, F.R.H.S., West Burton, Outram Road; A. TARVER (Secretary), 7, Stuart Road, Thornton Heath.

Botanical Committee.—J. Edmund Clark, B.A., B.Sc., F.G.S., Asgarth, Riddlesdown Road, Purley; H. T. Crosfield, B.A., 49, Coombe Road; Miss H. Jeffres Davis, 86, Lansdowne Road; Miss Klaassen (Secretary), Aberfeldy, Campden Road; H. T. Mennell, F.L.S., The Red House, Park Hill Rise; W. H. Morris, 1, Walpole Road; H. Franklin Parsons, M.D., F.G.S., Oakhyrst, 4, Park Hill Rise; Mrs. Parsons, Oakhyrst, 4, Park Hill Rise; C. E. Salmon, Pilgrims' Way, Reigate.

Geological Committee.—W. BRUCE BANNERMAN, F.S.A., F.G.S., The Lindens, Sydenham Road; T. F. CLARKE (Secretary), Lurline, Blenheim Crescent; G. J. HINDE, Ph. D., F.R.S., F.G.S., 24, Avondale Road; A. J. Hogg, 43, Whitworth Road, South Norwood; H. C. Male, M.D., Cromer Lodge, 74, Birdhurst Road; G. W. Moore, Bryndhurst, Dornton Road; T. K. F. Page, 9, Rosemount, Wallington; H. Franklin Parsons, M.D., F.G.S., Oakhyrst, 4, Park Hill Rise; N. F. Robarts, F.G.S., 23, Oliver Grove, South Norwood; W. Whitaker, B.A., F.R.S., F.G.S., Freda, Campden Road.

Meteorological Committee. — F. CAMPBELL-BAYARD, LL.M., F.R. Met. Soc. (Secretary), Cotswold, Wallington; J. Edmund Clark, B.A., B. Sc., F.G.S., Asgarth, Riddlesdown Road, Purley; Baldwin Latham, M.I.C.E., F.G.S., &c., Park Hill House, Stanhope Road.

Microscopical Committee. — Rev. R. K. Corser, 57, Park Hill Road; E. Averst Davis, 124, Croydon Road, Anerley, S.E.; Dr. T. A. Dukes, M.B., B.Sc., 16, Wellesley Road; C. C. Fagg, 34, Church Road, Upper Norwood, S.E.; E. Lovett, F.R.H.S., West Burton, Outram Road; L. Reed, F.C.S., Hyrst Hof, South Park Hill; Miss C. Ward (Secretary), 42, Temple Road.

Museum Committee.—J. M. Hobson, M.D., B.Sc., Woodside Court, Croydon; L. Stanley Jast, Central Library, Town Hall; E. Lovett, F.R.H.S., West Burton, Outram Road; H. T. Mennell, F.L.S., The Red House, Park Hill Rise; H. Franklin Parsons, M.D., F.G.S., Oakhyrst, 4, Park Hill Rise; N. F. Robarts, F.G.S. (Secretary), 23, Oliver Grove, South Norwood; W. W. Topley, 46, Friends' Road; W. Whitaker, B.A., F.R.S., F.G.S., Freda, Campden Road.

Photographic Committee. — J. H. Baldock, F.C.S. (Lanternist), Overdale, St. Leonard's Road; H. D. Gower, 55, Benson Road; R. F. Grundy, 8, Havelock Road; J. M. Hobson, M.D., B.Sc., Woodside Court, Croydon; J. G. Lincoln (Secretary), Bank Buildings, Croydon; A. Roods, 67, Thornhill Road; A. J. Weightman, Endsleigh, 11, Chepstow Road; W. W. Topley, 46, Friends' Road.

Zoological Committee.—T. F. CLARKE, Lurline, Blenheim Crescent; H. T. CROSFIELD, B.A. (Secretary), Walden, Coombe Road; STANLEY E. HALL, 17, Dornton Road, South Croydon; G. W. Moore, 15, Dornton Road, South Croydon; H. Franklin Parsons, M.D., F.G.S., Oakhyrst, 4, Park Hill Rise; A. Tarver, 7, Stuart Road, Thornton Heath.

#### Council's Report, 1906.

Since the report issued at our last annual meeting in January, 1906, it is to be regretted that, though in some respects the condition of the Society is more promising, in the matter of number of members there has been a still further slight falling off. At the end of 1905 the number stood at 167; it is now 163, and is made up as follows:—Ordinary members, 145; teachers, 13; juniors, 5—a total of 163. We have had an accession of 10 new ordinary members, 11 teachers, and 4 juniors—a total of 25; but against this fourteen members have resigned. We have lost one—Mr. H. Long—by death on the 1st October, and others, by reason of non-payment of subscriptions, have had to be removed from the list, making in all a reduction of twenty-nine.

With reference to the numbers mentioned as teachers, it will be within the recollection of the Society that in February last a proposal was made to alter Rule VIII. to the effect that teachers at public and private schools and polytechnics should be admitted at a subscription of 5s. This was duly brought before a general meeting of the Society and passed on 24th April. Since then we have sent circulars announcing the meetings regularly to all the Council schools, in the hope of inducing the teachers

of those schools to join.

We have continued to have a good attendance at meetings, and in this respect compare favourably with societies having a larger members' roll; but though friends are brought, and special attention has been drawn to the right of members to introduce friends, it has brought us a very small, if any, increase of membership.

At the ordinary meetings papers of an interesting nature have

been read :--

February 20th. — The reports of the Meteorological and Botanical Sections were read.

March 20th. - Paper on "Three-Colour Photography."

Arranged by Photo Section.

April 24th.—Mr. J. E. Clark, B.Sc., and Mr. H. T. Crosfield, B.A.: Account of the British Association's Meeting in South Africa. Illustrated.

May 15th.—"On the Causes of Earthquakes and Volcanoes,"

by the President.

September 18th.—No special paper was read.

October 16th.—" Notes on Casual Plants in Waste Places in London," by Dr. Franklin Parsons, F.G.S.

November 20th.—Paper on "British Reptiles," by Mr. Stanley

E. Hall.

December 18th.—Social Meeting.

Sectional meetings have been held: -

Anthropological.—This Section has held meetings in October and November. Mr. A. Tarver, having undertaken the Secretaryship, is endeavouring to have meetings with more regularity than hitherto.

BOTANICAL.—As usual, this Section has been active, and has held special evening excursions, also a meeting with the Microscopical Section.

Geological.—Have had regular monthly meetings, which

have been well attended.

MICROSCOPICAL.—Joint meeting with Botanical Section.

Photographic.—Several meetings have been held, but not all well attended.

Zoological.—This Section has been revived. Mr. H. T. Crosfield has undertaken the Secretaryship, and, with Mr. Stanley E. Hall, is trying to awaken an interest in zoology in its different branches. There is certainly scope for this Section, and much may be done in regard to the fauna of the district.

Excursions.—Two whole-day excursions were made—viz., on Whit-Monday, June 4th, to Shere, St. Martha's Chapel, and Guildford, and, on August 1st (Bank Holiday), to Titsey Park, besides several half-day excursions.

Dark Room.—Owing to this being very little used by members, the Council do not feel justified in continuing to retain the room at the present rental of £10 per annum, and correspondence has passed with the Public Hall Company which has resulted in a reduction of the rent being obtained.

The thanks of the Council are due to all who have taken an active interest, our Sectional Secretaries, and our Lanternist.

#### President's Address.

Mr. W. F. Stanley, after complimenting the zeal of the officers of the Society and the greatly increased number of attendances during his time of office, spoke of the happy result of the Committee being able to secure a new President so able and scientific as Mr. Baldwin Latham, who, he was sure, would be most welcome to the Society. To fill up the evening, after official business, the President gave some notes "On the Improbability of there being a 'Copper' Age prior to the Bronze Age," of which the following is an abstract:—

This subject has been most ably treated in a paper on "Copper and its Alloys in Prehistoric Times," by W. Gowland, Professor at the Royal School of Mines, in his presidential address read before the Anthropological Institute in January, 1906. The object in the present communication is to confirm or strengthen

the data given in that address by matters of my own experience in regard to smelting impure metals, and to make a suggestion as to the possible mode of casting implements in the earliest

period of the Bronze Age.

Except gold and the platinum group of metals, there are few metals found in a metallic state except copper, and this is found only sparsely distributed in a few localities over the globe; the most important of these being the Lake Superior district, Chili, Yunnan in China, Bolivia, Burra Burra in Australia, and in Cornwall. Elsewhere only minute quantities have been found, and these only in the interior structure of primitive rocks. Therefore to have obtained copper in Europe or Western Asia, the home of early civilization, must have been a difficult matter.

We can readily imagine that where copper could be found in a metallic state an early effort would be made to hammer it into the form of a useful implement, but the quantity obtainable in Europe, for instance, would be so small that it could not, at this distant period, warrant us in considering it as a "Copper Age." That native copper was incidentally found, and hammered and used, before the art of casting it was discovered. I have not the slightest doubt. I have here a small mirror of native copper which, as regards the metal, is nearly pure, that was found in one of the early tombs of the Queens at Abydos, accompanied with flint implements. This specimen, which I have polished, is found, under the magnifier, to be pervaded with minute crystals of silica, very common to native metallic copper. If it had been melted, the silica would have risen in slag to the Therefore it has evidently been beaten out from the native metal, and was, probably, originally worth its weight in gold. Where the native metal may have been found in Africa is unknown. It was possibly imported from China. It therefore follows that the manufacture of a copper implement, except near the district where native copper could be found, was a rare circumstance.

Now, as regards the mixture of various metals with copper which we term, broadly, "bronze," the difficulty of procuring the materials for a late Neolithic implement largely disappears. It is the common opinion that primitive forest fires in mineral rocky districts must have melted exposed metallic ores to a state of metal so that man obtained the knowledge that special ores or stones were reducible to metal by means of fire. The ores of copper are very rarely, if ever, found pure, and are highly refractory; but the copper ores of Cornwall, for instance—which contain or are associated with cassiterite (tin binoxide)—are reducible with much lower heat, and, as soon as smelting was discovered, would have been much easier to cast than purer copper. At present in Cornwall the "tinny" ores are sorted out

from the "coppery," as the tin is of much greater value, and to save the difficult process of separation by repeated smeltings with special fluxes. Mr. Gowland, in his analysis of a large number of implements of the Bronze Age, has discovered very few of copper and tin. The metals common in these implements, besides copper, were antimony, nickel, arsenic, silver, zinc, lead, and iron, also sulphur. The metal arsenic was almost universal.

It is at the present time a matter of great difficulty with our scientific metallurgists to produce fairly pure copper even from our purest ores, and it must have been quite impossible during the Bronze Age. Very few copper celts are found, and these may well have been forged from native copper. Where my own experience comes in is that I have never been able to buy pure copper that has been produced by smelting processes. The commercial copper that comes into the London market is never, in my experience, free from traces of many of the metals found by Mr. Gowland in bronze implements. The presence of arsenic, which is almost universal, at the melting-point of copper becomes a vapour, and produces blow-holes in the castings by which they are often spoilt after much work is done on them.

Mr. Gowland found that the composition—what we term "bronze"—varied greatly in the different districts where implements were found, sometimes containing little tin, as in Hungary, where the bronze found consists of copper and antimony principally. In other districts it is copper and nickel,

zinc, lead, or other local mineral ore.

My second note will be upon a probable very early mode

of casting metals.

We have evidence of the early form of smelting of metals upon the walls of the temples at Thebes, in what is termed the camp-fire system, in which a shallow hole is formed in the ground of cup-form, which is plastered in the interior with clay. A furnace was erected over the hole, formed of layers of charcoal and layers of the ore to be reduced, until a pile of sufficient height was raised which, after lighting, would reduce the special ore. The same process was common in Japan until 1865, and is still used in the interior of China, and in Africa among the savage races. It is generally assumed that this process was, primarily, to reduce the ore to the metal, to be afterwards smelted in a crucible so that it could be poured into an open mould. We have some of these moulds and crucibles in our museums. From the appearance of those which are made of clay, they would not stand sufficient heat to contain melted copper alloys, with outside firing, without cracking. It strikes me that the early bronze implements were cast by the mould being formed or placed in the bottom of the pit, so that the first

reduction was the only one, the mould being so formed that if a small amount of metal ran down a small implement was formed, if a larger quantity a larger one. This I saw evident, to my mind, in some palstaves in the Dublin Museum, which were similar in the haft, or handle connection, but varied in the blade and in thickness, in proportion, apparently, to the amount of metal run into the mould. This manner would certainly be much simpler to a non-metallurgist. At later periods, when the manufacture of refractory clay crucibles was discovered, as we find evident in highly-civilized Thebes, the primitive casting from the first reduction of the metal was abandoned, and metal was run into entirely closed moulds, as at the present time.

#### Obituary Notice.

#### Mr. HENRY LONG.

By the death of Mr. Henry Long, on the 1st October, 1906, the Society lost not only one of its original members, but one of those who, early in 1870, was one of the originators of the Society—established in March, 1870, as the Croydon Microscopical Club—the first meeting for the formation of the Club having been held at his house. He was first Hon. Secretary, and, as a keen microscopist, took a very active part in the doings of the Society for many years. Though not much known to present members—as, for some time past, with the exception of exhibiting a microscope and specimens, at soirées, he had been unable to attend meetings—Mr. Long was well known otherwise in Croydon, where he had practised as a chemist for many years, and took a great interest in educational matters in the borough. He was a member of the Pharmaceutical Society and of the Quekett Microscopical Society.

#### Summary of Proceedings.

#### EXCURSIONS.

June 4th, 1906 (Whit Monday).—Excursion to Gomshall, St. Martha's Chapel, and Guildford. Conductor, Mr. G. W. Moore.

The idea in this excursion was to visit the North Downs towards the western extremity, and to follow the escarpment in the direction of the gap cut by the Wey at Guildford, so as to make the excursion one of a series which have had different parts of the North Downs and the country dominated by them for their objective.

The day proved very favourable, and on arrival at Gomshall a pause was made to await any members who might arrive by a second train, due shortly after 11, and in this interval the members already arrived went to the exposure of the Folkestone Beds of the Lower Greensands adjoining the station, special notice being directed to the indications of iron shown. leaving the station, the party followed the road towards Shere by the course of the Tillingbourne, then turned up to the right into Colekitchen Lane, which leads straight up the escarpment. In the course of this lane, which is exceedingly picturesque and affords fine views over the Greensand tract to the south of the railway, the fine growth of the beech trees, as the chalk was reached, was noticed. Several dry coombes were seen en route. On arrival at the top of the hill a pause was made to see the charcoal-burning in King's Woods. Thence, through some finely-wooded country, the party sought for and found the outliers of tertiary deposits existing in Hook Wood and Pebley Wood, but were unable with absolute certainty to identify the "sands of doubtful age" believed to be equivalents of the lowermost beds of the Coralline Crag of East Anglia.

From this point the party proceeded westward along the old track, or ridgeway—probably British—towards Newland's Corner, noting on the way some hollows that may possibly be remains of hut circles, near which the beech trees were very fine. The nightingales were here very numerous, and singing splendidly—one especially remained for some time singing in full view of a few of our party. Near Newland's Corner the old yew trees, which are said to be mentioned in the 'Domesday Book,' were seen. These trees are very numerous on the Downs, many being in a good state of preservation, though evidently very old. Many fine hollies were also noted in the woods, in some of which the limbs had joined—a feature also noticed frequently

in beeches, both in the limbs and roots.

Descending the Down, the party then made for St. Martha's Chapel, which is situated on a hill of the Lower Greensand (Folkestone Beds), in which there is much ironstone, of which several brought away specimens. St. Martha's is one of the three chapels situated on or near the Pilgrims' Way. The others are St. Catharine's, near Guildford, and St. Margaret's, near Albury, both of which are in ruins. St. Martha's—probably originally known as St. Martyrs, and built in remembrance of the Roman British martyrs, many of whom are believed to have been burnt on the spot now occupied by the chapel—was restored during the early part of last century. Thence the party went through the Chantry Woods to Shalford, passing on the way a very old timbered cottage, marked on the six-inch ordnance map as an old pest-house. Passing through Shalford

Park, the members crossed the river by the ferry, and having had tea at Guildford, returned to Croydon by train.

August 6th, 1906 (Bank Holiday).—Excursion to Woldingham

and Titsey.

About a dozen members and friends met at Woldingham on this excursion. The route chosen from the station was over the hill, through Woldingham Village, thence by Flint Farm to the top of the escarpment of the North Downs overlooking Oxted and Limpsfield. A very pretty park was chosen along the side of the escarpment, through Titsey Woods, from which the route of the old Pilgrims' Way was visible in a field below on the outcrop of the gault clay. At the entrance to Titsey Park, just below a quarry in the Upper Greensand, the party was met by Mr. Cowdrey, Steward to the Hon. Leveson-Gower, and the Rev. C. Ewen Smith, Vicar of Titsey, and by them conducted across the park, through which the Pilgrims' Way could be traced, bordered by some fine ash trees. Mr. Cowdrey took a great deal of trouble, and, with the Vicar, accompanied the party to the remains of the Roman Villa which are in the park, and showed a plan by the aid of which the positions of the different parts of the building were easily made out. Fortunately, the remains, being in private grounds, are not disturbed, and many perfect specimens of tiles remain. Mr. Cowdrey very kindly placed his garden at Titsey Court at the disposal of the party for lunch, and showed some curiosities he had—viz., a fine old Tudor door, from Sanderstead—of which a photograph was taken by Mr. Fagg; an old Surrey iron fire-back, and a small cannon-ball, this last having been found embedded in a tree near Fox Farm, Croham Hurst, close to Crovdon.

After having lunch, Mr. Cowdrey took the party to Titsey Place, over which, by the very kind permission of the present resident, Mr. McGrath, the party was shown. The house was formerly the seat of Sir Thomas Gresham, and the interior, with fine oak carvings, also the Hon. Leveson-Gower's fine collection of Roman and later antiquities, found in Titsey Park, very interesting. The Vicar pointed out the site of the old church which formerly stood in the park close to the Pilgrims' Way, and a fine old yew tree, near which several old graves formerly existed.

Amongst the trees close to the house were a fine Catalpa, an Ailanthus, and a Cryptomeria. From the park the party went to the church, which, though chiefly modern, contains some curious

and interesting features.

After leaving Titsey, the walk was resumed through pretty wooded country towards Broomhall Farm, and thence to Limpsfield, where tea was had before returning from Oxted by train.

The thanks of the Society are especially due to Mr. McGrath, Mr. Cowdrey, and the Rev. C. E. Smith.

May 12th, 1906.—Afternoon excursion to Kew. Conducted

by Mr. J. E. Clark, B. Sc.

Owing to the unavoidable absence of Mr. H. Tuke Mennell, Mr. J. E. Clark was requested to act as leader. The party of fifteen, who met at the Alpine Garden, were greatly indebted to Mr. Morris, Mr. Keatley-Moore, and, especially to Mr. E. Lovett, for large funds of information. The large acquaintance of the last with Alpine flora made this portion of our visit deeply interesting. We were surprised, however, to note how much of the rockwork illustrated "how not to do it," the ideal of sending the rain inwards into the rock crevices being repeatedly ignored.

Special attention, also, was given to the large Temperate House and the Rhododendron Walk, with the adjacent Bamboo Garden. The luxuriance of this last was surprising. The rhododendrons were not yet in their prime, but in the sunshine of a beautiful day—such as were all too scarce during the

month—the display showed to great advantage.

Hardly less impressive was the carpeting in the adjoining Woodland Walk, where acre upon acre shimmered with blue-

bells, almost reflecting the colour of the sky.

The ideal weather must to some extent share with the valuable help given by the three members named above the honour of making the afternoon ramble a notable success.

June 16th, 1906.—Visit to Zoological Gardens. Conductor, Mr. G. W. Moore.

By the courtesy of the Superintendent of the Zoological Gardens, the party, consisting of about ten or twelve members, was enabled to see many specimens newly arrived at the Gardens

which were not on view publicly.

A visit was first paid to the cattle-shed, then to the lion-house, where a puma from South America and Indian leopard were shown and allowed themselves to be stroked. A black leopard, however, was intractable. The new sea-lions' pond with rockery, on which were several king penguins, was new since last year. The party then went to the large ape-house, and spent some time with a young chimpanzee, "Bessie," and were shown a young gibbon, the only kind of ape that can really move in an erect attitude for a short distance, the arms being stretched out sideways for balancing. The Prince of Wales's collection, newly arrived from India, and temporarily housed, was then seen. This included specimens of the red dog, not before possessed by the Society.

July 7th, 1906.—Excursion to Park Downs, Chipstead Village and Church. Conducted by Dr. H. Franklin Parsons, F.G.S.

A half-day excursion was made, under the leadership of Dr. Parsons, from Chipstead Station to Park Downs, Chipstead Village and Church, returning by the Brighton Road to Stoat's Nest. The plants observed *en route* are given in the Report of the Botanical Section.

Chipstead Church, like most other ancient village churches in this neighbourhood, stands on a mound, and has a large yew tree in the churchyard; but, unlike others, it is cruciform in shape, and has a central tower instead of a shingle-covered spire. The exterior, which alone the party were able to see, shows examples of a number of styles. On the north side of the nave is a doorway of transition period, with a round arch and capitals in the Norman style, but with Early English mouldings and dog-tooth ornament. In the chancel and transepts are a number of narrow lancet windows of the Early English period, while other windows are of the Perpendicular period.

September 15th, 1906.—Excursion to St. George's Hill, near Weybridge, Conductor, Dr. H. Franklin Parsons, F.G.S.

From Weybridge Station the route lay over a common (where the dwarf furze (Ulex Gallii) was found) and through extensive woods composed chiefly of the Scotch pine, of which there were many large and well-grown specimens. St. George's Hill is an eminence about 220 feet in height, composed of the Bagshot beds. The plateau at the top is of a star shape, with radiating ridges separated by steep dells. The top of the hill is thickly wooded, and planted with ornamental exotic conifers, so that it is only here and there, through gaps in the trees, that the fine distant views can be seen. The top of the hill is occupied by an entrenchment, marked in the Ordnance map as "British Camp occupied by Cæsar before crossing the Thames at Cowey Stakes. This camp is of an irregular shape, following the sinuosities of the hill; where the earthworks cross the level ground they are well marked, showing in some places three distinct ramparts, but they are less distinct where the steep scarp of the hill afforded defence.

The woods are not very rich botanically, except in fungi, and these were not plentiful, owing to the dryness of the season. About fourteen species were found, chiefly in a damp hollow partly occupied by a pond, the novelties being Agaricus (Naucoria) myosotis, Thelephora caryophyllea, and Stegia ilicis. A few mosses and hepatics were also found.

Tea at the Swiss cottage on the hill, and a wet walk back to the station, a heavy shower having come on, concluded the day.

October 6th, 1906,—Visit to Dr. L. S. Little, Whitehill,

Bletchingly, and Mrs. Pitt Rivers, War Coppice.

Owing to the absence of the Hon. Secretary, who had received an invitation from Dr. Little for a party to visit his house and, subsequently, to go to War Coppice, the residence of Mrs. Pitt Rivers, widow of the late General Pitt Rivers, to see the remains of an old British Camp still existing in the grounds, it was impossible to make this excursion more widely known, and consequently only about a dozen members were able to accept. Dr. and Mrs. Little kindly entertained the party, and pointed out the places of interest in the neighbourhood. War Coppice is on the site of the Camp known as Cardinal's Cap, and is situated close to the Pilgrims' Way. Part of the vallum and fosse of the Camp are still distinct, and the position and probable extent of the earthworks were explained very clearly by Mr. Fox Pitt. Mrs. Pitt Rivers gave the party a very cordial welcome, but was unable to see all who were present.

#### EVENING MEETINGS.

Feb. 20th.—Reading of Meteorological and Botanical Committees' Reports.

March 20th. — Held at Lecture Hall, Central Library, Croydon. Subject: "Three-Colour Photography." By Mr. Sanger Shepherd.

April 24th.—Resolution passed to alter Rule VIII. to admit teachers as members at a subscription of 5s. (See page cx.)

Mr. J. E. Clark, B.Sc., gave an account of his visit to South Africa with the British Association, and Mr. H. T. Crosfield, B.A., exhibited a series of lantern-slides of photographs taken on the same visit.

May 15th.—Mr. W. F. Stanley (President), F.R.S., F.G.S., read a paper "On the Causes of Earthquakes and Volcanoes."

After alluding to the late calamity at San Francisco, of which Mr. Stanley showed a record of the consequent earth-movement, obtained by Professor J. Milne at Shide, Isle of Wight, he argued that earthquakes and volcanoes were due to pressure at the poles caused by the weight of snow and ice, which, acting upon the molten material beneath the superficial crust of the earth, produced expansion along the lines of least resistance and rupture of the surface, thus causing earthquakes, and that volcanoes were simply the vents through which the expanded molten material escaped.

Sept. 18th.—Exhibition of specimens, and the President, who attended the British Association Meeting at York as delegate, read a short report. (See page c.)

Oct. 16th.—Paper: "Notes on Casual Plants in Waste Places in London," by Dr. H. Franklin Parsons, F.G.S. (See Trans., No. 24.)

Nov. 20th.—Paper: "On British Reptiles," by Mr. Stanley E. Hall.

After briefly stating that there are half a dozen reptiles indigenous to Great Britain—three snakes and three lizards—grass-snake (Tropidonotus natrix), common adder (Vipera Berus), smooth snake (Coronella austriaca), slow-worm (Anguis fragilis), common lizard (Lacerta vivipara), sand lizard (Lacerta agilis), Mr. Hall defined a reptile, and pointed out the connection between snakes and lizards, showing, by the aid of diagrams, the arrangement of the bones of the head and how they differ from the remaining orders of the Reptilia.

The structure of a typical snake was somewhat closely gone into, as also was the dentition of our British species, special attention being drawn to the wonderful working of the adder's poison fangs. Mr. Hall endeavoured to show, by the help of a rough drawing, the relationship of the grass snake and adder to such popularly known snakes as the boa-constrictor, python,

rattlesnake, and cobra.

Our grass snake belongs to the typical or northern form, in length averaging two and a half to three feet, is perfectly harmless, can be easily kept, and will even breed in captivity. Its food consists chiefly of frogs. The markings and appearance are quite distinct from those of the adder, the latter being easily recognizable, not only from its smaller size—average, eighteen inches to two feet,—but by the zigzag marks down the back, the V-mark on the head, and blunt tail. In colour the adder varies according to sex and age. Numerous instances were cited of both these snakes being seen in the neighbourhood of Croydon. The smooth snake appears to be very little known, and is, indeed, rarely met with nowadays. The commons near Bournemouth are, probably, the most frequented spots. Though somewhat fierce in manner, it is quite harmless.

Of the lizards, the slow-worm is the most interesting. Although very snake-like in appearance, the presence of eyelids (which no snake has), the arrangement of the belly scales, and the length of the tail at once proclaim the lizard. The latter part of the paper dealt with the habit our lizards have of parting with the greater portion of the tail and of reproducing it.

At the close, a lively discussion followed upon the mode

by which snakes progressed.

Dec. 18th.—Social Evening.

#### British Association.

REPORT OF THE CORRESPONDING SOCIETIES' MEETING AT THE BRITISH ASSOCIATION AT YORK, SEPTEMBER, 1906.

In the Address to the Conference of Delegates, the Chairman, Sir Edward Brabrook, C.B., pressed the study of local anthropology as being of great interest and of permanent value to local societies, for change of dialect, costume, &c., which would scarcely apply to our Society; also to make education, as far as possible, valuable to the technical work of the district; also that local societies should consider and try to improve the hygienic conditions of the several districts: further, the desirability of affiliation of local societies with

neighbouring societies.

The Report of the Committee of Corresponding Societies, of which our Mr. Whitaker is Chairman, stated the progress made in the affiliation generally of smaller societies than our own, which met with a certain amount of success; further, of their endeavour to induce railway companies to offer travelling facilities at lower rates to members of local scientific societies for excursions and to promote attendance at each other's meetings. The application to the railway companies met with only limited success, except so far as warrants could be obtained from the secretary for a reduction in fares to

members attending the Annual Conference of Delegates.

A long discussion took place at the second meeting upon the desirability of photographs being taken and kept by local societies of old parts of towns which were subject to change, also of antiquarian discoveries which would, in all probability, not remain in public possession. It was strongly advised that prints of these photographs should be of uniform size-either whole-plate or half-plate-and be mounted, either singly or in duplicate, on uniform sunk mounts fourteen inches by eleven inches. It was suggested that photographs should be taken of antiquarian, geological, and other interesting objects in situ immediately they were found. I suggested the convenience of quarter-plates, from the extreme portability of the Kodak camera, so generally carried, and stated how useful this size had been to our Society for productions of lantern-slides and enlargements, particularly in the work of a Mr. Sarjeant, a former secretary. Some objections were raised, but I thought these of little weight for our consideration.-W. F. STANLEY.

### Reports of Sections for 1906. BOTANICAL COMMITTEE.

During 1906, members of the Botanical Section have made evening excursions to places of botanical interest in May, June, and July, have taken part in the Society's general excursions with a view to recording notable plants, and have exhibited living and dried specimens at the ordinary meetings. The Committee has continued the investigation of the commons and wild tracts in the neighbourhood of Croydon, recording notable plants, the disappearance of recorded species, and the occurrence of casuals.

In the spring a joint meeting was held with the Microscopical Section, and in the autumn a paper was read by Dr. Parsons, at the ordinary meeting, on "Casual Plants in Waste Places in London." (See Trans., Art. No. 24.)

The Thursday evening rambles were as under (reports are by the

conductors):---

On Thursday, May 24th, Mr. J. E. Clark, B.Sc., conducted an evening ramble over Riddlesdown. Meeting outside Purley Station shortly after six o'clock, members and visitors mustered to the unusual number of twenty-five. Exploring first the unoccupied part of the goods yards, now entirely obliterated, we found a decidedly varied flora, including not a few casuals and chalk-loving plants. Both of the indigenous mignonettes may be mentioned, the cut-leaved Reseda lutea and Reseda luteola (the dyers' rocket), also Geranium

pyrenaicum and Lepidium campestre.

Clambering up on the enclosed down behind the chalk face, we at once came on masses of Polygala calcarea, the blue and white varieties of which form large patches here and on the common itself. The species has a more compact form and clearer blue than the common kind. The juniper (J. communis) is more abundant here than on the common, but shows signs of distress from the propinguity of the almost unceasing train service. Stunted specimens of the Whitebeam also (Pyrus aria) are interspersed. This is by no means a common species off the chalk. The wind displayed here to full advantage the silver gleam of its leaves on every hand. Indeed, it may be doubted whether anywhere in England, except in the Wye Valley, a greater profusion of this handsome tree can be seen than from Riddlesdown. Nor does the writer recall, except by the Wye, a finer specimen than the one on the Riddlesdown Road, just opposite Paice's Farm buildings.

Visiting Coxley Plain Plantation, Adoxa moschatellina was picked, and sweet woodruff (Asperula odorata) abounded. A few primrose roots are still unravaged. Most interesting is a plant of the burnet rose (R. spinosissima), more familiar on our northern and western

shores, or on northern upland slopes.

Coming to Riddlesdown Common, the season was too backward for much to be in bloom on so exposed a spot. It is worth noting that a cowslip root is still growing there (*Primula veris*), and the sweet violet (*V. odorata*), both white and blue, may be found hard by; whilst on the railway cutting, at the east end, grows the rare white mullein (*Verbascum lychnitis*).

Altogether the evening afforded us an enjoyable and interesting ramble, although the main flora of the chalk would be far better

represented a month later.\*

On Thursday. June 21st, an evening botanical walk was arranged to start at Caterham and follow the Harestone Valley up to Whitehill, conducted by Mr. Henry T. Mennell. About sixteen members and friends mustered at Caterham. The evening was beautifully fine, but rather too hot, as the party found.

In the Beech woods, at the head of the valley, the beautiful white helleborine (Cephalanthera pallens), for which the old name of Cephalanthera grandiflora seems more appropriate, was in great plenty and perfection, being very conspicuous where the beech foliage above was so thick as to prevent the growth of any other vegetation.

<sup>\*</sup> The Purley Station-yard locality is now destroyed; the end of Riddlesdown next visited is now being cut up for building.—January, 1907.

Epipactis latifolia, abundant in the same locality, was not yet in flower. In the more open parts of the wood the sanicle (Sanicula europæa) was very abundant and in full flower. Plants of Daphne

Laureola were also noticed.

In the open ground on the hill several orchises were noticed. The bee orchis (Ophrys apifera), the fly (Ophrys muscifera), the sweet-scented (Habenaria conopsea), the spotted (Orchis maculata), and Orchis pyramidalis only just appearing. The twayblade (Listera ovata) was also very abundant and fine. Small specimens of the bird's-nest orchis (Neottia nidus-avis) were noticed here, but under the beech-trees at the top of the hill towards the tower it was found in some plenty and of unusual size. The little crucifer (Sisymbrium Thalianum), conspicuous only when in seed, was abundant in the hedgerows near the tower. The bushes of Guelder-rose in full flower were much admired.

Attention was drawn by Dr. Parsons to the growth of the white bryony and its tendrils, pointing out how the long straight filaments have a hooked tip, and are waved freely in the air until an attachment is made to some neighbouring plant. Then the tendril commences to twist, the spiral starting from the centre being dextral for one half and sinistral for the other, as it is obvious that, being attached at both ends, it could not twist in one direction throughout its whole course. In this way the tendril greatly contracts, and the climbing plant is

drawn nearer and nearer to its support.

The return was made by the old Waterworks, along the ridge, to Caterham, instead of to Merstham, as had been intended, the time being short for the longer walk; and it is hoped that the district between Merstham and Whitehill may be explored on some future occasion. Near the Waterworks the Canterbury bell (of course an excess from applying the party of the course of the course

escape from cultivation) was noticed in some plenty.

On July 19th an evening ramble was made, under the guidance of Dr. Parsons, to South End and Bromley Park. The attendance was small, Kentish localities, however rich botanically, not having, apparently, so much attraction for our members as Surrey ones.

Arriving at Lower Sydenham Station, the route taken was by South End Lane to South End, then through the meadows and grounds between Warren Road and the River Ravensbourne, and by the Ladies'

Golf Ground and Ravensbourne Station to Beckenham.

The following were the more noteworthy plants observed:—

Matricaria chamomilla (wild chamomile).—By Lower Sydenham Station.

Sparganium ramosum (bur-reed).—River Pool and Ravensbourne.

Sison Amomum (honewort).—South End Lane. Lepidium ruderale (cress).—South End Lane.

Coronopus Ruellii (wart cress).—South End Lane.

Enteromorpha intestinalis (an alga).—Millpond, South End. Elodea canadensis (American weed).—Millpond, South End.

Impatiens fulva (touch-me-not).—River Ravensbourne.

Sium angustifolium (water parsnip).—River Ravensbourne.

Typha latifolia (bulrush).—River Ravensbourne.

Sparganium simplex (small bur-reed).—River Ravensbourne.

Polygonum amphibium (persicaria).—Meadows by River Ravensbourne,

Senecio aquaticus (marsh ragwort).—Meadows by River Ravensbourne.

Malva rotundifolia (round-leaved mallow).—Meadows by River Ravensbourne.

Carex remota (sedge).—By pond in Bromley Park.

C. pseudo-cyperus (sedge).—By pond in Bromley Park.

Nymphæa alba (white water-lily).—By pond in Bromley Park.

Petasites vulgaris (butter-bur).—By pond in Bromley Park.

Lastrea dilatata (shield fern). By pond in Bromley Park. Bidens tripartita (bur-marigold).—By pond in Bromley Park.

Ranunculus sceleratus (mud-crowfoot).—By pond in Bromley Park. Symphytum sp. (comfrey).—Warren Road. Carex hirta (hairy sedge).—Pond in Ladies' Golf Ground.

Myosotis cæspitosa (forget-me-not).—Pond in Ladies' Golf Ground, Alisma Plantago (water-plantain).—Pond in Ladies' Golf Ground.

Nasturtium palustre.—Pond in Ladies' Golf Ground. Lepidium campestre (cress).—Ladies' Golf Ground. Malva moschata (musk mallow) .- Ladies' Golf Ground. Humulus Lupulus (hop).—Copse near Ladies' Golf Ground.

A few fungi were seen, as *Polyporus sulphureus* and *Pholiota leochroma* (so named with a query by Dr. M. C. Cooke), the latter in clusters on the roots of an elm tree at South End.

At the general excursion on July 7th the following plants were observed:-In the bottom of the Chipstead Valley are a number of fine elm and ash trees, on the trunks of which several kinds of lichens are fairly plentiful. Park Downs are covered with a fine velvety turf, and support a typical chalk-loving flora, in which the dropwort (Spiræa Filipendula) and the quinsy-wort (Asperula cynanchica) are the most noteworthy species. In a field between Park Downs and Kingswood Lane the cowslip was plentiful, though, of course, out of flower, and in a neighbouring wood grew Valeriana officinalis. In an old gravel-pit grew the mullein (Verbascum Thapsus) and the musk-mallow (Malva moschata). In the lane (Castle Lane) leading up to Chipstead Village were found Carex muricata and Lactuca muralis. In the pond in the middle of Chipstead Village, far isolated from any other water, grew several aquatics, as Ranunculus peltatus, Callitriche verna, Apium inundatum, and Glyceria fluitans. In a field of vetches and rye at Upper Hooley Bromus secalinus grew. It was noticed that the chalk heaps thrown up in the formation of the cutting and tunnel of the new line of the Brighton railway about 1899 were in places already grown over with vegetation.

On Saturday, September 15th, Dr. Parsons conducted the annual fungus hunt. (See page xcvii.)

The number of plants recorded for the commons near Croydon is:-

named of prints recorded for the comment		
Hayes and West Wickham Commons	342	344
Keston Common	277	277
Shirley Hills	190	193
Croham Hurst	255	256
Mitcham Common	462	462
Riddlesdown	108	186
Worms Heath	61	67
Farthing Down	108	108

During 1906 the following less common plants have been observed in the neighbourhood of Croydon:—

Lastræa Filix-mas.—Chipstead. Lamium amplexicaule.—Oxted.

Vinca minor .- Oxted.

Verbascum Lychnitis.—Earlswood, by brickyard.

Erysimum orientale.—Croydon; garden weed, H. T. Mennell. E. cheiranthoides.—Croydon; garden weed, H. T. Mennell.

Tanacetum vulgare.—Hayes.

Bidens tripartita.—Pond at Brickwood House, Croydon.

Polygonum amphibium.—Pond at Brickwood House, Croydon. Ranunculus sceleratus.—Pond at Brickwood House, Croydon.

Lemna polyrrhiza.—Chessington.

#### Mr. C. E. Salmon, F.L.S., records in Surrey:-

Trifolium pratense, L., var. parviflorum, Bab.—Near Crabtree Cottage, Norbury Park.

Carex axillaris, Good.—Thorpe Green.

C. panicea, L., var. tumidula, Læst.—Near Chertsey.

Hottonia palustris.—Near Chertsey.

Enanthe phellandrium, Lam.—Near Chertsey.

Carex acuta, L.—Near Chertsey. Geranium pratense.—Near Chertsey. Orchis latifolia, L.—Near Chertsey.

Hypochæris glabra, L.-Walton-on-Thames.

Polygonum maculatum, Trim. & Dyer.—Pond near Petridge Wood Common, Earlswood.

The following fungi, not previously recorded by us from the neighbourhood of Croydon, have been observed during 1906:—

Agaricus (Clitocybe) orbiformis.—Addington Hills.

A. (Mycena) proliferus.—Hayes Common. A. (Pholiota) squarrosus.—Caterham. A. (Pholiota) leochromus.—South End. Polyporus fomentarius.—Limpsfield.

P. salignus.—Beddington Corner.

Thelephora puteana.—Addington Hills. Auricularia mesenterica.—Carshalton.

Clavaria rugosa.—Coulsdon.

Æthalium septicum.—Addington Hills.

The following Notes on the Meteorology of the year 1906 in relation to vegetation, are contributed by Dr. Parsons:—

The rainfall during 1906 at Croydon (Park Hill Rise) was 23.86 inches. This is almost exactly equal to the average of the previous thirteen years, viz., 23.81 inches. The rainfall was, however, distributed very unequally over the year, the greater part of which was dry, the number of wet days being only 153, as compared with 166, the average of the previous thirteen years; but the total rainfall for the year was brought up to the average by a few wet periods and heavy downfalls. January, October, and November were very wet months, but March, April, July, August, and September were dry.

The year has been a warm one, the mean temperature having been 1·3 above the average, the excess being greatest in the months August to November. The amount of sunshine has exceeded the average by some 3·5 per cent., and this has been the case in some months—e.g., January and October—in which the rainfall has also exceeded the average, heavy falls of rain alternating with periods of bright sunshine. Fogs have been comparatively few, and there was no snow to speak of until the last week in December.

January, as already said, was mild and spring-like, with plenty of sun as well as rain. In consequence, the first flowers of the year, as the winter aconite, snowdrop, and yellow crocus, made their appearance very early—about a fortnight before the usual time.\* But, as an old proverb says, "A January spring is good for no thing." February was cold and stormy. March and April were very dry, with cold winds and frequent night frosts, though with some very fine warm days. The cold winds and frosts retarded vegetation and did much damage to the fruit blossom; hence the crop of pears, plums, and other early blooming fruits was a scanty one, though strawberries were plentiful.

May was cloudy, cold, and dry, except for one heavy fall. June was very fine and dry, except for one fall of over one and a half inches, with a prevalence of cold north-east wind and even a few ground frosts. Vegetation was very backward at this period, and the hay crop

was a very short one, especially on light soils.

July and August were not and dry, except, again, for a single heavy fall in each month. The corn crop was an exceptionally good one, but

the hop crop very poor.

September began with the hottest days of the year, and the first part of the month was warm and dry; in the middle of the month was a week of wet, unsettled weather; and the latter part was cold and dry, with north-east winds, ground frosts, and morning fogs. The leaves of some trees, as the lime and elm, during the dry weather began, in August and September, to turn brown, shrivel, and fall off prematurely; but this process was arrested by the rain, and the foliage

#### \* DATES OF APPEARANCE OF EARLY SPRING FLOWERS:-

	Avrge. 13 yrs.	1906.
Eranthis hyemalis	Jan. 15	Jan. 4
Galanthus nivalis		,, 6
Erica carnea		,, 18
Crocus aureus	Feb. 8	,, 18
Leucojum vernum	, 18	,, 27
Scilla bifolia		,, 29
Anemone blanda		Feb. 15
Dondia Epipactis		,, 25
Iris reticulata		,, 25
Chionodoxa Luciliæ		,, 27
Narcissus minimus		,, 26
Saxifraga apiculata		Jan. 28
Saxifraga oppositifolia		Mar. 7
Daphne Mezereum, red		,, 13
Arabis albida		,, 18
Forsythia viridissima		Feb. 22
Ribes sanguineum		Mar. 18
Iris punila		Apr. 22
2 Paratra	·····	

which had not fallen seemed to take a new lease of life, remaining on

the trees nearly till the end of November.

Fungi were very scarce before the rain in September, after which they became more plentiful; but, in spite of the heavy rains of October and November, they never became so abundant as in the annus mirabilis, 1903. Apparently, in order to produce an abundant appearance of fungi—especially of the rarer kinds—a wet summer is needed, in order to promote the development of the mycelium in the ground, as well as a wet autumn to mature the fructification.

October was wet but very warm, the mean temperature being 5°, and the amount of sunshine 7 per cent. above the average. It was very favourable to vegetation, there being an almost entire absence of frost and fog; and the tender summer flowers, as dahlias and begonias, continued in bloom throughout the month and until cut off by a frost

on November 11th-12th.

The Jerusalem artichoke (*Helianthus tuberosus*) was in flower at South Croydon on October 29th. This plant only flowers with us in years when the summer heat is prolonged late into the autumn, and its flowers have only been observed previously in two of the past

thirteen years.

November was wet and mild, except for the frost just mentioned, but generally cloudy. The first three weeks of December presented no special feature, but the last week was cold and frosty, with heavy falls of snow on December 26th and following days. Some of the winter flowers which ordinarily come out in December, as the Christmas rose, did not appear until January.

During Christmas and New Year weeks (1906-7), the following wild flowers were noted in bloom near Croydon by Mr. J. E. Clark, B.Sc.:—

Composites.—Crepis virens, Carduus arvensis, Senecio vulgaris, Chrysanthemum Leucanthemum, Matricaria inodora, Bellis perennis, Achillea Millefolium, Taraxacum dens-leonis, Erigeron acris, Sonchus oleraceus (milk thistle), Hieracium vulgatum, Carduus acaulis, Senecio

Jacobæa, Centaurea scabiosa.

Other Wild Flowers.—Ranunculus repens, Euphorbia Peplus, Euphorbia exigua, Poa annua, Lamium album, Brassica Sinapistrum, Capsella bursa-pastoris, Stellaria media, Arenaria serpyllifolia, Cerastium vulgare, Geum urbanum, Daucus Carota, Linaria spuria, Hedera Helix, Holcus lanatus, Lychnis vespertina, Linaria vulgaris, Trifolium fragiferum, Ajuga reptans, Æthusa Cynapium, Corylus Avellana, male (Christmas Day), Ulex europæus, Heracleum Sphondylium.

The following flowers were in bloom in Mr. J. E. Clark's garden at Asgarth, Purley, during Christmas and New Year weeks, 1906-7:—

Roses. — Grusz an Teplitz, Petit Constant, Beauté Inconstante, Madame Ravary, La France, Monthly Rose, ditto (second variety), Antoine Rivoire, Caroline Testout, Madame Abel Chatenay, Perle des Neiges, Perle des Jardins, Boule de Neige.

OTHER FLOWERS.—Viola (two named varieties), Chrysanthemum niveum and single, white stonecrop, yellow stonecrop, yellow jasmine, valerian, Veronica rupestris, greater St. John's wort, Geum rivale, polyanthus, lesser periwinkle, white scabious, wallflower, Onopsidium

acaule, nasturtium (common), Tropæolum lobbianum, viola (third variety), double blue Michaelmas daisy, Dianthus deltoides, dahlia, phlox, strawberry, sweet pea, Japanese anemone, snapdragon, a helianthemum, hollyhock, Statice speciosa, canariense, ivy-leaved geranium, leopard's bane, white colchicum, mignonette, thyme, lavender, larkspur, sweet William, Canterbury bell, Canterbury bell (old form), red sedum, pansy, double white arabis, Berberis Darwinii, cornflower (Cyanus), snowdrop (Galanthus Elwesii), cardinal flower.

On Thursday, March 29th, at the joint meeting of the Botanical and Microscopical Sections, Mr. H. T. Crosfield, B.A., gave an address on "Movement of Plants," illustrated by experiments and exhibits under the microscope and followed by discussion. The meeting was

well attended, and members of both Sections exhibited.

The power of movement is not, as might at first appear, confined to the animal kingdom, but is found well developed among plants. Locomotion is met with in the lower forms, such as the Flagellata and Bacteria, and the spores of many Algæ and Fungi, which move by means of cillia. The Slime Fungi (myxomycetes) possess amœboid movement—that is, they can crawl over a surface by arms of protoplasm (pseudopodia), which are pulled in and out and produce the motion. Among the higher plants, the most important classes of movement are those known as tropisms, among which are included geotropism, heliotropism, and hydrotropism, by which are meant movements in relation to gravity, light, and moisture respectively.

That the direction of the growth of roots is due to the stimulus of gravity was shown by Knight, who allowed seedlings to germinate on a rotating disc, and the roots were then found to grow in the direction of centrifugal force. The curvature is not due merely to weight, and it has been shown by numerous experiments that the sensitive part of the root is also the region of greatest growth, and is situated just

behind the root-tips.

Two theories have been suggested to explain the method by which the plant is able to interpret the stimulus of gravity. These both depend on changes taking place in individual cells of the growing region, and not on any strain acting upon the root as a whole. In a single geotropic cell the cell-sap will exert a hydrostatic pressure on the basal wall; if, now, the cell is turned so that some other wall is basal, the pressure will differ in proportion to the difference in height of the columns of cell-sap, and this difference in pressure may act as a signal to the plant. This is known as the radial pressure theory. But there are also, in the cells of the endodermis, large movable starch grains, known as statoplasts, and when the cell is vertical these will lie on the basal wall and will exert a pressure on it, but if the cell is placed in some other position the starch grains will exert a stimulus on some other wall. Here, again, is a possible means by which the plant may be able to determine its position in relation to gravity. This is, briefly, the theory of graviperception known as the statolith theory. If it be a correct view, the starch grains of the endodermis play somewhat the same part in relation to the plant as do the sand grains of a crustacean otolith to the animal in enabling it to maintain equilibrium. It is worthy of note that statoplasts are only found in the growing region, and other evidence seems to point to the statolith theory

as affording a very likely explanation of the power of graviperception

in plants.

Plants also react to light and moisture, and the sensitive region seems to be much the same as for the geotropic stimulus. All these movements are of the utmost importance to the plant, enabling it to adapt itself to changes of position, light, and moisture.

#### GEOLOGICAL COMMITTEE.

The Committee beg to report that eight committee meetings and nine sectional meetings and one excursion have been held during the year. With the exception of the January and February meetings, all have been well attended.

The following interesting exhibits may be mentioned:-

G. J. Hinde, Ph.D., F.R.S., F.G.S.—Imperfect specimen and plates of the crinoid, *Marsupites Testudinarius*, from Plough Lane, Beddington, and Clay Lane, Hedley. *Offaster (cardiaster) pillula*, an echinoderm, found in his garden at Croydon, from a higher (Marsupites) zone than usually found in the district.

Dr. H. C. Male.—A collection of fragmental bones (principally bird) from the floor of cave at Clevedon, in Somerset. A collection of

fossil ferns from Shropshire.

Dr. H. Franklin Parsons, F.G.S.—Collections of Fossils from the Carboniferous limestone of Derbyshire, the Crag of Bramerton and Arminghall in Norfolk, the Cornbrash on the borders of Wilts and Somerset, and the Forest Marble of Somerset.

W. Whitaker, B.A., F.R.S., F.G.S. Orthoceras annulatum, showing the rings well preserved, from base of Aymestry Limestone, near

Malvern.

On the evening of the 13th June, an excursion was made to Messrs. Hall & Co.'s Cement Works, near Beddington, under the leadership of Dr. H. Franklin Parsons, F.G.S., to inspect a newly-exposed section

in the London clay.

The pit, which is at the bottom of a previous excavation in the gravel beds, is about twenty feet deep in the London clay. The clay, however, is not of the ordinary character of the London clay, for, instead of being of the usual stiff texture, and of brown or blue colour, it is dark grey, and sandy or loamy in nature, and somewhat laminated with partings of dark sand. It is excavated for the purpose of being ground up with chalk and burnt, to form cement. It contains Septaria, and some pyritous lumps, but no selenite was seen, though this mineral is common in the London clay elsewhere. A few fragile and fragmentary shells were found in the clay, and the party was shown by Mr. Picken, in the office, fragments of a large nautilus and pieces of lignite from the same bed, also an elephant molar tooth from the gravel bed, and flints containing chalk fossils, such as Inoceramus, Micraster and Cidaris.

#### PHOTOGRAPHIC COMMITTEE.

The chief features of the year, so far as the Photographic Section is concerned, have been an exhibition of the 'Amateur Photographer' prize slides, supplemented by lantern slides lent by members of the Section; a public demonstration of Three-Colour Photography, arranged by the Section and given in the lecture-room of the Town Hall; and a lecture on Telephotography, illustrated by lantern-slides.

The prize slides were an excellent series, and, with the slides exhibited at the same time, were extremely useful as examples of good slide-making. The lecture on Telephotography was of much interest theoretically and practically, and the slides were of very fine quality. In arranging for the public demonstration of Three-Colour Photography, the Committee of the Section wished to offer an opportunity of obtaining information respecting the Sanger Shepherd process to non-members as well as members of the Society. The demonstration was illustrated by slides, and the Committee of the Section hope that members of other Sections of the Society who may not be interested in the details of the practice of photography may often find it convenient to attend meetings of the Section at which slides are exhibited, as the views shown are usually of general interest.

In 1905 the Photographic Section offered to make photographic records of exhibits produced at meetings of other Sections. This offer has only been made use of to a limited extent. Members of the Photographic Section are always ready to photograph exhibits, of which every care will be taken until they are returned to the

owners.

#### ZOOLOGICAL COMMITTEE.

A meeting was held on October 31st, and it was then decided to re-start the work of this Section, which had fallen into abeyance.

The meeting was partially devoted to the business of re-organization, and temporary officers were appointed. Exhibits were then shown, the most interesting being tubes of various marine worms by Dr. Parsons, a collection of moths by Mr. T. F. Clarke, and a flying fish, sent from the West Indies, and exhibited by Mr. H. B. Crosfield. The second meeting was held on November 30th, when four members brought exhibits, among which were some young marsupials in spirit, brought by Dr. Male; specimens of Echinodermata, exhibited by Dr. Parsons; a soft-shelled tortoise from the tropics, and a fine barnowl which was picked up dead by Mr. Stanley Hall a few miles from Croydon, and was subsequently stuffed.

The Committee expect to arrange regular evening meetings during the coming session, at which exhibits may be shown and short papers read. It is also hoped to hold some field excursions during the

summer.

#### Rules.

Rule VIII:—By a resolution passed at the Ordinary Meeting on 24th April, 1906, this rule was amended, and is now as follows:—

"The annual subscriptions for members shall be 10s., except that the subscription for teachers in public schools, Polytechnics, and private schools shall be 5s., and for junior members 2s. 6d. Such subscription shall be payable on the 1st January (or on election, if previous to December), and no person whose subscription is unpaid shall be entitled to the privileges of the Society. Any member desirous of compounding for his or her subscription may do so at any time by payment of £10; all such sums shall be duly invested in such manner as the Council shall think fit."

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Return made by County Fire Office... Less premium due... Dividends on Life Membership Invest-ment (£10 19s. 6d. Consols).

# SPECIAL FUND ACCOUNT.

# £186 9s. 0d. CONSOLS.

Subscription for 1907, paid in advance	January 1, 1907.	,, July ,, October	1906. January 1. To Balance Dividend, January April
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There is still due to the Society for unpaid Subscriptions, from 3 members—in all, £1 10s.

We, the undersigned, having examined the books of the above Society, also the accounts and vouchers relating thereto, certify the above are properly drawn up so as to exhibit the true and correct view of the Society's affairs.

F. J. TOWNEND, Hon. Treasurer.

W. L. MOORE, W. W. TOPLEY, \Begin{cases} Hon. Auditors.

2nd January, 1907.

#### TRANSACTIONS

of

## THE CROYDON NATURAL HISTORY AND SCIENTIFIC SOCIETY.

1906-1907.

24.—On Casual Plants in Waste Places in London.

By H. F. Parsons, M.D., F.G.S.

(Read October 16th, 1906.)

I PROPOSE to bring before the Society a few notes on Casual Weeds and the way in which they establish themselves in waste

places in towns.

Some few years ago the large building called the Aquarium, at Westminster, was pulled down, and the site has remained. until this year, waste and covered with heaps of stone, brick, and mortar rubbish, upon which a number of weeds had established themselves. In May this year, the site being about to be cleared for the erection of a new building, I took the opportunity to look over these heaps, and in half an hour made a list of some fortyone species of plants growing on them. Of these plants, some were the common annual weeds of cultivated ground, like the groundsel, shepherd's-purse, knot-grass, and Poa annua, and others were perennial weeds-such as are found on road-sides and waste places—as the dock (Rumex crispus), coltsfoot, perennial thistle, dandelion, plantain (Plantago major), nettle, and sowthistle (Sonchus arvensis). The seeds of these have probably been wafted by the wind from the adjoining streets, the site being separated from streets on two sides only by open palings. Twelve of the forty-one plants were such as have feathery fruits seeds, as several Compositæ, willows, and willow-herbs (Epilobium). Besides these, there were a number of plants such as are found on heaths, as the gorse, broom, bracken, rush (Juncus glaucus), and a sedge (Carex pilulifera); these have probably been introduced with loam or peat in the mould in which the ornamental plants formerly in the Aquarium were There were seedling plants of the cornel, apple, and fig. The seeds of the two latter might have been left by the former frequenters of the Aquarium, or, more probably, have been

dropped by birds. There was a fig-tree until recently at Spring Gardens, about half a mile distant. (I may mention that a seedling fig-tree came up in a frame in my garden at Croydon, where the seed must have been dropped by a bird.) Three mosses, Funaria hygrometrica, Tortula muralis, and Webera nutans, were found on the Aquarium site. The first two of these, with Bryum argenteum and Ceratodon purpureus, will grow where there is sufficient moisture even in the heart of towns, although town smoke is poisonous to most mosses, especially to such as grow on trees. I found this year another moss, Hypnum cupressiforme, at the new Government buildings at Westminster, growing on concrete in a place where water dripped. I also recently noticed a fern, a moss (Ceratodon purpureus), and several algae on a wall in the dark covered road under Waterloo Station, in a place where water ran down.

Between Aldwych, Kingsway, and the Strand are other plots of waste ground, formerly occupied by buildings but at present covered with heaps of rubbish. On these I have counted some twenty-one species of plants, most of them being casual weeds. Among them were wheat and maize, Chenopodium urbicum (a rare plant which I have not found elsewhere), Polygonium Convolvulus, and the willow herb (Epilobium angustifolium). The surface was in places carpeted with the silvery moss, Bryum

argenteum.

On other pieces of waste ground at Westminster I have noticed in former years the bramble and the black poplar. Of the former, the seeds have no doubt been dropped by birds, and those of the latter blown from the large trees in St. James's Park. In years favourable to fruiting I have seen the white feathery seeds from these trees filling the air like a snow-storm. While on the subject of St. James's Park, I may mention that I recently examined the accumulation of weeds at the bottom of the ornamental water—which is at the present time drained for the purpose of cleansing—and found it to consist mainly of a green alga, Vaucheria, and a Chara, with the "American weed," Elodea canadensis. These plants have probably been brought by the gulls and other wild birds which frequent this water.

Although the humble weeds which spring up on waste ground may be less attractive than the showier flowers of our woodlands and meadows, or than the botanical rarities which survive in wild places as relics of an aboriginal flora, yet even the weeds raise

questions of interest about their origin and distribution.

Let us picture to ourselves a region like the south-east of England, with its fertile soil and temperate climate, in its primitive condition uncultivated and uninhabited except by wild beasts and, perhaps, savage hunters. In such a region there would hardly be place for the plants which now form our

common weeds of waste and cultivated ground; there would be scarcely any bare soil, the whole surface being occupied by permanent vegetation in forests and thickets, in grassy downs and pastures, or in marshes and peat bogs. The plants native to such places are mostly trees, shrubs, and herbaceous There are also strong-growing biennials, which perennials. take advantage of the autumn, when the perennial plants are about to enter on their winter rest, to form rosettes of large root-leaves and thick tap-roots, in which a store of nourishment is laid up, by the aid of which in the following year the plant produces a tall flowering stem. This habit has been utilized by man to develop by culture esculent vegetables, such as the turnip, carrot, beet, and onion, the cabbage, spinach, and lettuce. annual plants of wild ground are mostly small species growing on dry banks and sandy soil; these bloom and produce their seed in the spring and early summer, so that they have provided for the continuation of their species before they are burnt up by the drought of the summer. Other annual plants grow later in the year on thin, poor soil, where the growth of the perennials is not strong enough to choke them; and others, again, on the mud on the borders of pools and streams, where it is covered with water in winter, but dry in summer.

In a wild region such as we have imagined, the only bare ground would be on the sea-shore, with its cliffs and salt marshes, on the banks and dry beds of streams, and, here and there, where a landslip had taken place, in the burrow of a wild beast, or where a large tree had been blown over by the roots. Occasionally large tracts might be laid bare by a forest fire, but such fires would be infrequent in the

absence of man.

It is probable that the sea-shore was the original habitat of many of our weeds, especially of such as grow in rich waste ground, such as the *Chenopodiacea*, which are especially abundant at the sea-side.

For an annual plant to be able to take advantage of casual vacancies in the permanent vegetation such as I have mentioned, and establish itself and occupy the ground, it must have the power of rapid growth and multiplication. This the weeds have. The proverb tells us that "Ill weeds grow apace," but it is just because they can spread so quickly that the gardener considers them "ill weeds." Many of these weeds have inconspicuous flowers, which are not dependent upon insects for fertilization, and are produced during a considerable portion of the year, or even all the year round, as in the groundsel, shepherd's-purse, chickweed, and some of the annual veronicas. They produce seeds in great abundance, and the seeds germinate readily and rapidly; they appear, also, to

have the power, in some cases, of retaining their vitality in a dormant condition for many years, so that a piece of ground which has been newly turned up may be covered with weeds such as did not grow there before. Some have special means of transport for the seeds, such as the pappus of Compositæ, the wings on the seeds of some Caryophyllaceæ, and the hooks of the cleavers (Galium aparine); but more often they appear to depend upon the abundance with which the seeds are produced for the chance of one finding a suitable destination.

By such means we may suppose that the weeds were enabled to follow the footsteps of man, and establish themselves in the clearings of the ground which he had made, thus greatly extend-

ing their range and abundance.

On the barest and most sterile soils, such as ground which has been burnt, few seed-plants will at first grow. The first growth on such places usually consists of mosses, especially Funaria hygrometrica; these, by their decay, form a layer of humus in which the higher plants are enabled to grow. On coarse loose rubbish, such as railway embankments and tips, the first plants to establish themselves are those with strong deep roots, such as coltsfoot, dandelion, sow-thistle (Sonchus arvensis), and several grasses, and also shrubs such as hawthorn, bramble, and elder.

The annual weeds of corn-fields, called by botanists "colonists," are somewhat different as a group from the common weeds of waste ground and gardens. There are among them many plants with showy flowers, as the poppies, charlock, corn-cockle, corn-marigold, and blue-bottle, and the species of wild chamomile and hemp-nettle. These flower mostly in the summer while the corn is growing or ripening, and their seeds get mixed with the grain and have to be removed by winnowing. They have probably been introduced originally from foreign countries with corn and other cultivated plants.

The growth of civilization and extension of commerce with other parts of the world bring about the frequent introduction of foreign weeds. These may often be found on ballast-heaps and about corn mills and woollen mills, some species having prickly seeds which get entangled in the wool. Gravel-pits, such as that near Hayes Station, often yield such plants, the loose bare gravel being a favourable medium for the germination of the seeds. They do not, however, often establish themselves on a permanent footing. It is said that after the siege of Paris in 1871 about a hundred species of plants not previously known there were found growing in the positions occupied by the German army, the seeds having been brought with forage and other stores, but that in the course of a few years very few of these intruders remained.

25.—Report of the Meteorological Committee, 1906.

Prepared by the Hon. Sec., Francis Campbell-Bayard, F.R. Met. Soc.

(Read February 19th, 1907.)

THE same arrangements, under which the daily rainfall of the district round Croydon has been observed and tabulated, have been continued throughout the year 1906. The number of stations in the printed list is 102, and there are three additional stations viz. The Holmes, Betchworth; Beechfield, Bramley Hill, Croydon; and Cree Fleet, Cumberland Gate, Kew—the records of which are quite complete, and will be found at the end of this Report. Great changes have taken place, and I may add that great losses have been suffered during the year. The old-established gauge at Brixton, the records of which commence in January. 1871, has come to an end in consequence of the removal of the observer owing to illness. The whole of the records of this station are in the hands of your Committee. Our next loss is that of Mr. Batten's station at the High Field, Bickley. station was started in 1879, and the records from 1888 are in your Committee's reports. Mr. Batten has been a most consistent observer, and it is with great regret that your Committee has received the announcement, which is owing to Mr. Batten's great age. Our next loss is that of the "Windmill," Wimbledon, through the observer leaving. This station, though it had only been established five years, was a valuable one, owing to its high position as compared with the neighbouring district. Our fourth loss is that of Steel Hawes, Morden. This station would appear to have been established prior to 1899, but the records in the hands of your Committee only go back to 1900. This station is but a short distance from the station at Beddington Corner. Our next loss-and a great one it is-is the station at Beverstone, Oxshott, through the removal of the observer. This record commences in 1891, and is in the hands of your Com-The station is not very far from that of D'Abernon Chase, but the observations are very different in character. Two other stations came to an end at the close of the year—viz. our President's, Mr. Baldwin Latham's, station at Duppas House, Croydon, owing to his removal to Park Hill House, and Captain Wilson Barker's station on board the training-ship H.M.S. Worcester, off Greenhithe. A station has been established by Mr. Baldwin Latham at his new residence, but the station at Greenhithe cannot be replaced, which is much to be regretted,

TABLE I.

THE RAINFALL OF 1906 AS COMPARED WITH THE AVERAGE OF THE TEN YEARS 1891-1900.

1	1 2000000000000000000000000000000000000
Year	H
Dec.	11.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1
Nov.	H. 1.50 H.
Oct.	H. H
Sept.	H. H
Aug.	In I
July	In 10.046 11.059 11.059 11.059 11.059 11.059 11.059 11.059 11.059
June	In 1
May	10.23 10.24 10.25 10.05 10
April	In. (0.93) (0.93) (0.94) (0.95) (0.95) (0.95) (0.95) (0.95) (0.95) (0.95)
Mar.	In. —0.73 —0.89 —0.40 —0.46 —0.02 —0.24 —0.28 —0.28 —0.28 —0.77 —0.77 —0.77 —0.74 —0.74 —0.74 —0.46
Feb.	In. (19, 19, 19, 19, 19, 19, 19, 19, 19, 19,
Jan.	LD
Stations	Knockholt (F. G.)  Dorking Caterham Banstead Addington Hills Nutfield (O. G.) Reigate Hill Forest Hill (Waterworks) Addington (Pumping St.) Abinger (The Hall). Redhill* Bickley D'Abernon Chase Leatherhead Forest Hill (Newfield H.) Orpington. W. Norwood Beckenham*

THE RAINFALL OF 1906 AS COMPARED WITH THE AVERAGE OF THE TEN YEARS 1891-1900 (contd.).

1	
Year	Land State    La
Dec.	Land Control of the c
Nov.	++++++++++++++++++++++++++++++++++++++
Oct.	H. 109 100 100 100 100 100 100 100
Sept.	H. H
Aug.	In. 1.59 In. 20 In.
July	I
June	1.25 1.25
May	Hermitian Hermit
April	In 10.652
Mar.	In. 0.38  -0.538 -0.538 -0.549 -0.509 -0.509 -0.509 -0.509 -0.509 -0.509 -0.509 -0.509 -0.509 -0.509 -0.509 -0.509 -0.509 -0.509
Feb.	Th. 1
Jan.	LE. 1.69 1.69 1.69 1.69 1.69 1.69 1.65 1.
Stations	Nunhead Sidcup Croydon (Duppas House) Wimbledon Hill* Greenwich Croydon (Waddon N.Rd.) Wallington Croydon (Brimstone Bn.) South Norwood* Beddington Richmond* Wimbledon (Sew. Wks.) Raynes Park New Malden Esher Kingston (Sew. Works) Surbiton Wilmington Battersea (Waterworks) Deptford

as a station on board ship shows the influence of its surroundings in a very marked degree, and forms a valuable comparison with stations on the land. To meet these losses we have five new stations—viz. Betchworth, a district not represented; Shirley, Walton-on-the-Hill, a like district; our President's new station at Park Hill House; Beechfield, Bramley Hill, not very far from Duppas House; and Cumberland Gate, Kew, not very far from Dr. Burrell's station. The gauge at the Sutton Waterworks was replaced in November on the completion of the works for softening the water. The gauge at Sevenoaks was moved in July to a new situation further up the hill, and, consequently, it was thought desirable not to run the two records together, though, as far as can be made out, there is very little difference between the two situations. The gauge at Clapham Park was moved in May to Atkins Road from New Park Road. As these two situations were very close together, and there was no difference in height, it was decided to take no notice of the change, but to run the records together as one.

Appendix I. to this Report contains a list of the observers, with particulars relating to the stations and gauges, and also the monthly tables of daily rainfall, of which a sufficient number have from month to month been pulled for the use of the Society. These printed tables contain the records of all observers, with the three exceptions already mentioned, reporting to the Committee.

Appendix II. contains a record of all falls of rain of 1.00 in. and upwards, extracted from the monthly tables in Appendix I.

The rainfall of 1906 presents some very striking features, and, in order to show them, Table I. has been prepared. table consists of the records of 38 stations from amongst the 48, whose averages for the ten years 1891-1900 are given in the Meteorological Sub-Committee's Report for 1900, the stations for which the records are not the same being marked with a \*. In considering this table, the first thing which will strike the reader will be that the rainfall was largely in excess in January, February, June, October and November, and in defect in the other months, and more especially in April, July, August, and December. To go to particulars:—In January the rainfall was very greatly in excess at every station, varying from 3.75 in. at Redhill to 1.23 in. at Richmond. This, though very graphic, does not give any idea of the extraordinary wetness of the This is only obtained by considering very long records, such as Greenwich, Surbiton, and Wimbledon. At Greenwich the rainfall, 3.71 in., has only been exceeded three times since 1815, viz. in 1828, when it was 3.87 in., in 1868, when it was 4.19 in., and in 1877, when it was 4.35 in. At Surbiton the rainfall, 3.59 in., has only been exceeded four times since 1855, viz. in 1867, when it was 4.80 in., in 1868, when it was 4.40 in.,

in 1872, when it was 3.82 in., and in 1877, when it was 4.72 in. And at Wimbledon the rainfall, 3.80 in., has only been exceeded once since 1854, viz. in 1877, when it was 4.70 in. In February the excess is much smaller—in fact, at three stations (Richmond, Wimbledon (Sewage Works), and Ravnes Park) there was an actual defect. The variations ranged from +0.94 in. at Knockholt (field gauge) to -0.23 in. at Raynes Park. In March there was a deficiency at every station with one exception, viz. Redhill. The variations ranged from + 0.11 in. at Redhill to -0.77 in. at Bickley. In April there was a deficiency at every station, and this ranged from -0.33 in. at Deptford to -0.91 in. at Knockholt (field gauge). In May the rainfall was much more variable, 18 stations having an excess and 20 stations a deficiency. In the excesses, the range was from +0.32 in. at Abinger (The Hall) to + 0.01 in. at Caterham and Forest Hill (Newfield House), whilst the deficiencies ranged from -0.02 in. at Nutfield (old gauge) and Battersea Waterworks to -0.23 in. at Knockholt (field gauge). In June there was an excess at every station with three exceptions—viz., at Caterham and Nutfield (old gauge) and Esher, and the variations were from + 1.47 in. at Nunhead to - 0.26 in. at Caterham. In July there was a deficiency, generally very large, at every station, and this ranged from -2.13 in. at Caterham to -0.16 in. at Orpington. At Greenwich the July rainfall, 0.41 in., has only been smaller four times since 1815, viz., in 1825, when it was 0.10 in., in 1835, when it was 0.28 in., in 1864, when it was 0.27 in., and in 1878, when it was 0.31 in. At Surbiton, since 1855, it has only been less (0.61 in.) five times, viz., in 1864, when it was 0.44 in., in 1876, when it was 0.49 in., in 1885, when it was 0.40 in., in 1898, when it was 0.53 in., and in 1899, when it was 0.34 in.; and at Wimbledon, since 1854, it has only been less (0.84 in.) five times, viz., in 1864, when it was 0.53 in., in 1869, when it was 0.65 in., in 1876, when it was 0.59 in., in 1885, when it was 0.49 in., and in 1899, when it was 0.67 in. In August there was also a large deficiency at every station, ranging from -2.14 in. at Dorking to 0.62 in. at Deptford. Greenwich the rainfall in August has only been smaller twenty times since 1815, at Surbiton only seven times since 1855, and at Wimbledon only seven times since 1854. September had a somewhat variable rainfall; out of the list in Table I. 16 stations had an excess and 22 a deficiency in rain. Of the stations with an excess, the largest excess was at Kingston Sewage Works, which had + 0.79 in., and the smallest at Beckenham, which had + 0.04 in. Of the stations with a deficiency, the largest occurred at Banstead, which had -0.84 in., and the smallest at Raynes Park, which was -0.04 in. October was, with one exception, viz., Raynes Park, which had a deficiency of -0.14 in. a month with a

rainfall in excess of the mean which was in some cases of considerable amount. The excesses ranged from + 1.59 in. at Wilmington to + 0.01 in. at Wimbledon Hill and Wimbledon Sewage Works. November was a month of very large rainfall at every station, the excesses ranging from + 2.93 in. at Knockholt (field gauge), to +0.72 in. at Esher, the only station which had an excess of less than + 1.00 in. That this does not show the true character of the rainfall is evident from the long record of Greenwich, which had 4:11 in. From 1815 there are only six Novembers with a larger fall, viz., 1821, with 4.33 in., 1839, with 4.84 in., 1842, with 4.25 in., 1844, with 4.50 in., 1852, with 6.00 in., and 1861, with 5.07 in. In the Surbiton record, commencing in 1855, there are only four Novembers with a larger amount than November, 1906, which had 3.64 in., and these are 1861, with 5·13 in., 1875, with 3·81 in., 1877, with 5·72 in., and 1899, with 4.21 in. And in the Wimbledon Hill record, commencing in 1854, there are only two Novembers with a larger amount than November, 1906, which had 3.96 in., viz., 1861, with 4.41 in., and 1899, with 4.36 in. With respect to December, there was a general deficiency at all but three stations, viz... Wimbledon Hill, with an excess of + 0.16 in., Banstead, with one of +0.07 in., and Greenwich, with one of +0.01 in., which ranged from — 1.11 in. at Knockholt (field gauge) to — 0.10 in. at Beckenham.

With respect to the annual rainfall, Dr. H. R. Mill, in his letter published in 'The Times' of 15th January, 1907, states that "1906 was not a remarkable year with respect to rainfall, unless it be remarkable to coincide almost exactly with the average, the portions of the country which were unduly wet compensating for those which were unduly dry." In our district it would appear that, according to Dr. Mill, we should be considered as being unduly wet, for, out of the 38 stations in Table I., only eight are below the average. The excess above the average of the 30 stations ranges from + 4.51 in. at Redhill to + 0.17 in. at Surbiton, whilst the deficiency in the eight stations below the average ranges from - 2.48 in. at Raynes Park to - 0.07 in. at Leatherhead.

TABLE II.

Number of Rainy Days at Wallington, Surrey.

Average of 10 years	Jan	Feb.	Mar.	Apr.	May	Jun.	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year.
1891-1900	18 20		13 17	11 8	11 12	11 7	10 9	15 7	12 10	16 19	16 20	17 19	164 166

#### NUMBER OF RAINY DAYS AT GREENWICH OBSERVATORY, KENT.

Average of 10 years	Jan.	Feb.	Mar.	Apr.	May	Jun.	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year.
1891–1900	16	12	14	11	12	12	12	15	12	16	15	16	163
1906	20	21	17	10	11	8	7	7	11	19	19	18	168

### NUMBER OF RAINY DAYS AT REIGATE HILL, SURREY.

Average of 10 years	Jan.	Feb.	Mar.	Apr.	May	Jun.	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year.
1891-1900	18 22	13 20	14 18	11	11	11	13	14	12 10	17	16	19	169 167
1906	22	20	18	O	12	0	9	- 1	10,	19	10	10	107

That the year, as a whole, in our district has been a wet one, we have seen from Table I., and the number of rainy days seems to confirm this view. This is exhibited in Table II., which gives the 10 years' average for the three places of Wallington, Greenwich, and Reigate Hill, and shows by comparison how the number of rainy days appears.

We will take the yearly values first. In Table I. the yearly rainfall at Wallington is + 0.66 in. above the average, and in Table II. the number of rainy days is 2 above. At Greenwich, the values are + 2.53 in. and 5 respectively. And with respect to Reigate Hill, we have an excess of + 1.15 in. combined with a deficiency of 2 in the number of rainy days. We will now turn to the individual months. January and February-wet months—have an excess in the number of rainy days, which is especially large in February. March, with a deficiency in rainfall, has an excess in the number of rainy days, thereby showing that the falls were relatively small. In April there is a deficiency both in the rainfall and in the number of days. In May the number of rainy days closely corresponds with the rainfall, the excess or deficiency, as the case may be, not being great. In June there is an excess in rainfall and a deficiency in the number of days, the excess in rainfall being largely attributed to the very heavy rain on the 28th. In July, August, and September there is a deficiency both in the rainfall and in the number of rainy days. In October and November there is an excess over the average both in the rainfall and in the number of days, the excess in both cases being large-in November especially. In December there is a deficiency in the rainfall, but, except at Reigate Hill, there is an excess in the number of rainy days, showing that the falls, though many, were small.

The number of falls of one inch and upwards given in Appendix II. is nine, of which only two—those of January 16th and June 28th—extend over any considerable area and may be considered as general throughout the district. The largest fall

was 2.60 in. at Brockwell Park on June 28th.

Mr. Baldwin Latham, our President, has very kindly informed me that the total number of hours during which rain fell in 1906 was 427.67, which gives the actual number of days of twenty-four hours each as 17.8, and the actual annual rate of fall as .0604 in. per hour. This compares with 21.6 days and .0467 in. per hour in 1905, 24.9 days and .0377 in. per hour in 1904, and 31.5 days and .0512 in. per hour in 1903. This shows that in 1906, though the number of days was much smaller, yet the rate of fall was relatively much heavier in 1906 than in any

of the three previous years.

This report, though primarily only intended to deal with rainfall, would not, I feel, be complete unless something was said with reference to the remarkable weather experienced at the end of August and the beginning of September, and the very great warmth of October. The general character has been very ably dealt with in a paper by Mr. William Marriott, which was read before the Royal Meteorological Society on November 21st, 1906, and was entitled, "The Abnormal Weather of the Past Summer and Some of its Effects." As this paper is now published in the Society's Quarterly Journal'—the January number—I will not further allude to it. Our President has also sent me a letter and table, which it has been thought advisable to add here, as it gives a very short, and at the same time very valuable, account of the highest temperatures which have been experienced in Croydon during the past thirty years:—

Parliament Mansions, Victoria Street, Westminster, S.W.: September 11th, 1906.

DEAR SIR.

If you are going to say anything about the hot weather, in the Meteorological Report for last month or this, I enclose you a list of the highest temperatures which I have taken at Croydon in the last thirty years. You will see how few years there are in which the temperature has been equal to or over 90° in the shade, namely, in 1881, 1893, 1898, 1899, 1900, and 1906.

Yours faithfully,

BALDWIN LATHAM.

F. Campbell-Bayard, Esq., Cotswold, Wallington, Surrey. RECORD OF THE HIGHEST TEMPERATURES AT CROYDON IN EACH YEAR, FROM 1877 TO 1906, FROM OBSERVATIONS TAKEN BY MR. BALDWIN LATHAM.

Year.	Date.	Highest Shade Tem- perature.	Temperature in the Sun.	Where taken.
1877	July 31st	83.0	_	Nantwich House, Croydon.
1878	June 26th	85.5		,,
1879	July 29th	77.0		"
1879	July 30th	77.0	<del>-</del> .	,,
1880	May 26th	82.0		,,,
1881	July 15th	93.6	147.9	. ,,
1882	Aug. 12th	79.4	145.5	, ,,
1883	May 29th	81.0	142.9	,,,
1883	Aug. 21st	81.0	145.0	,, ,,
1884	Aug. 11th	89.1	144.9	"
1885	July 26th	88.0	128.3	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
1886	Aug. 31st	83.7	132.2	22
1887	July 4th	87.0	147.0	",
1888	Aug. 10th	82.0	135.5	27 99
1889	Aug. 1st	82.2	143.0	,,,,,
1890	Aug. 5th	79.9	141.3	Silverton Lodge, Croydon.
1891	July 17th	81.1	141.5	,,
1892	May 31st	83.7	149.5	"
1893	Aug. 16th	91 8	145.2	27 27
1893	Aug. 17th	91.6	146.0	,, ,,
1893	Aug. 18th	92.3	145.5	27, 27,
1894	July 6th	84.6	138.2	Duppas House, Croydon.
1895	May 30th	84.4	143.0	,, °
1895	Sept. 24th	85.6	128.1	,,
1896	July 21st	88.2	143.0	,, ,,
1897	June 24th	87.6	149.0	,,
1897	Aug. 4th	87.9	143.0	. ,,
1898	Aug. 22nd	87.9	143.8	. ,, ,,
1898	Sept. 8th	91.0	137.5	,, ,,
1898	Sept. 9th	90.0	136.0	,,
1899	Aug. 15th	90.0	144.8	,,
1899	Aug. 25th	90.0	146.2	,,
1900	July 16th	93.4	149.9	- ,,
1900	July 19th	90.9	144.6	,,
1900	July 20th	92.4	143.0	"
1901	July 19th	88.0	142.9	,,
1902	June 28th	84.8	142.9	. >>
1903	July 11th	86.8	138.0	"
1904	Aug. 3rd	88.7	142.0	,,
1905	July 9th	83.2	135.6	39
1906	Aug. 31st	94.1	145.6	***
1906	Sept. 1st	94.4	143.8	",
1906	Sept. 2nd	94.2	144.6	"
1906	Sept. 3rd	90.8	145.2	27 99
,				

Mr. Simpson Rostron, of Beddington, has also written to me a most valuable and characteristic letter, which it has been thought desirable to include in this report:-

127, Piccadilly, W.:

DEAR MR. BAYARD,

September 27th, 1906.

Anent your remarks on September, the following figures will be of interest :-

Greenwich Observatory.

					9	
			Max.	Min.	Rel. Hur	nidity.
Aug.	$31\mathrm{st}$	• • •	94.3	56.1	42 pc	er cent.
Sept.	1st		91.9	58.3	47	,,
	2nd		93.5	58.0	41	,,
,,	3rd		91.0	56.1	44	,,
				4	) 174	
					43.5	

These figures are most remarkable, containing many "records." The previous driest day was May 19th, 1868 (Relative Humidity 43 per cent.); therefore 41 and 42 are both records. I have no doubt there never were four such dry days running-mean Relative Humidity 43.5 for four days! This excessive dryness, with cloudless skies, accounts for the cool nights and the great fall of leaves. The maxima are equally striking. A 943 is a record for August, except the 18th, 1893, when it was 95.1, the mean temperature of which was 79.6!—the hottest\* ever observed at Greenwich. I have searched the Greenwich, Chiswick, and Luke Howard records, and in no month in any year have there been four consecutive days with maxima above 90°, except in July, 1825, when L. Howard gives six such days (15th-20th). The hot Julys of 1808, 1818, 1852, 1859, and 1868 have only two or three such days running. Twice in August, viz., 1876 and 1893, there were three such days, but never four, and, of course, never in September. 1857 was the highest mean for August, 65°.7; it has no such days.

13	876.	Max.		18	393.	Max.
Aug.	13th†	 92.6		Aug.	16th	 93.0
,,	14th	 93.8		. ,,	17th	 94.2
,,	15th	 93.1		99	18th	 95.1

In 1868 and 1895 September had a maximum of over 90°, but three days' running has not been recorded, nor has 93.5 as a maximum. During the last seventy years days with a Relative Humidity below 47 or 48 may be counted on your fingers. My maximum was 93.9, with 23°! difference between dry and wet bulbs = Relative Humidity 29 per cent.! 93.9 is the highest ever observed by me since 1880. July 15th, 1881, had 93°.2.

If you can send me more remarkable figures, do, addressing "Riverside."

Yours very truly,

SIMPSON ROSTRON.

† Relative Humidity 48 per cent.

<sup>\*</sup> The previous highest mean = 79.5, July 15th, 1881.

This letter relates to the hot weather at the end of August and the beginning of September. In two other letters Mr. Rostron deals with the warm weather in October, and these two letters are also added:—

Riverside, Beddington:
November 8th, 1906.

October Weather.

DEAR MR. BAYARD,

Can you favour me with your results for last month? It is a remarkable one.

1. Greenwich.

Mean 53°.95 (54°.0). 24 days, mean 56°.2.

7 days had a mean  $+60^{\circ}$ . Highest mean  $61^{\circ} \cdot 4$  (23rd).

20 days had maximum over 60°. 2 days had maximum over 70°.

The mean on 10th, 11th, 21st, and 22nd highest known for their dates.

The maxima 21st, 22nd, and 23rd also records. The minima 15 nights + 50°; 6 nights + 55°.

Since 1814, only in 1859 are there seven days with a mean + 60°, but in 1859 it was the first seven days running. It was the warmest October since 1861, and then back to 1831. How was your sunshine? Greenwich 128 hours on 29 days. Rain 3.05; here 3.78.

2. Beddington.

Mean temperature 53°·3.

Mean maximum 60°·3. Maximum 69°·0 (1st). Mean minimum 46°·2. Minimum 31°·0 (26th).

19 days maximum  $+60^{\circ}\cdot 0$ .

10 nights minimum  $+50^{\circ}\cdot 0$ ; 3 nights  $+55^{\circ}\cdot 0$ .

Minimum (5th) 58°·4; (22nd) 55°·2.

Greenwich minimum (5th) 56°.7; (22nd) 55°.1.

At the Royal Observatory, Greenwich, the minima on the 2nd (58°·1), 5th (56°·7), and 21st (57°·0) are each a record for its respective day.

Yours very truly,

SIMPSON ROSTRON.

Beddington:

November 11th, 1906.

DEAR MR. BAYARD,

My best thanks for your figures. Your mean for October

works out 54°.1—looks high compared with my 53°.3.

I knew that in 1886 October was warm, but the heat was all at the opening and close of the month. Here, from the 10th to the 29th, 60° was never touched, and at the Royal Observatory, Greenwich, from 12th to 29th. I send the leading figures of the two months compared; they are quite different in character and features. 1886 was five days very warm, 1906 was three weeks warm without any high maximum readings. The difference in sunshine is striking.

I see my monograph on the heat in August and September is in yesterday's 'Herald.'

Yours very truly,

Maximum 59°·6. Minimum 46°6.

Beddington.

Maximum of month 78°.4.

Minimum of month 34°.4.

Mean of month 53°·1.

SIMPSON ROSTRON.

October, 1886.

Greenwich Royal Observatory.

Mean of month 53°·3.

Maximum of month 79°·2.

Minimum of month 38°·0.

Hours of sunshine 63·1.

Sunless days 13.

Days mean + 60°, 3.

Days mean + 55°, 11.

Days maximum + 60°, 13. Nights minimum + 55°, none.

In 1886 the warmth was the first five and the last three days of the month.

October, 1906.

Greenwich Royal Observatory.

Mean of month  $53^{\circ}.95$ , say  $54^{\circ}.0$ . Maximum of month  $71^{\circ}.8$ . Minimum of month  $32^{\circ}.1$ . Hours of sunshine 128.0. Sunless days 2. Days mean  $+60^{\circ}, 7$ . Days mean +55, 16. Days maximum  $+60^{\circ}, 20$ .

Nights minimum + 55°, 6.

Beddington.

Mean of month 53°3°. Maximum observation 69°0. Minimum observation 31°°0. Mean maximum 60°°3. Mean minimum 46°°2.

In 1906, the warmth, except on the 13th, 14th, 15th, and 19th, continued until the 25th, the mean of the first 24 days =  $56^{\circ}$ ·2. The last seven days were cold.

May I be allowed to say, on behalf of the Committee, what a matter of regret to them it is that a man of such great knowledge as Mr. Rostron should not publish it to the world in the form of a book or a paper before one of the learned societies? How one wishes that he would follow the example of our President, and give to the world some portion of his great learning!

In conclusion, the Committee desire to thank those individuals and public bodies, sixteen in number, who have given donations in aid of the expenses of the rainfall work, and also the observers, without whose cordial co-operation this organization could not be carried on, and the Committee desire expressly to say that the whole of the donations go towards printing the observations and reports, and not one single penny goes to the observers or Committee.

THE HOLMES, BETCHWORTH, SURREY.

Observer-Francis R. Rushton. Gauge 5 in. in diameter.

Height of gauge above ground, 8 in. Height of station above sea-level, 322 ft.

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year.
IN.	IN.	IN.	IN.	in.								
5·82	2.60	1.73	0.34	1·49	2·54	0.56	0.55	1.81	4·25	5·26	2·38	29·33

BEECHFIELD, 20, BRAMLEY HILL, CROYDON, SURREY.

Observer—H. R. Wise. Gauge 5 in. in diameter.

Height of gauge above ground, 1 ft. Height of station above sea-level, 198 ft.

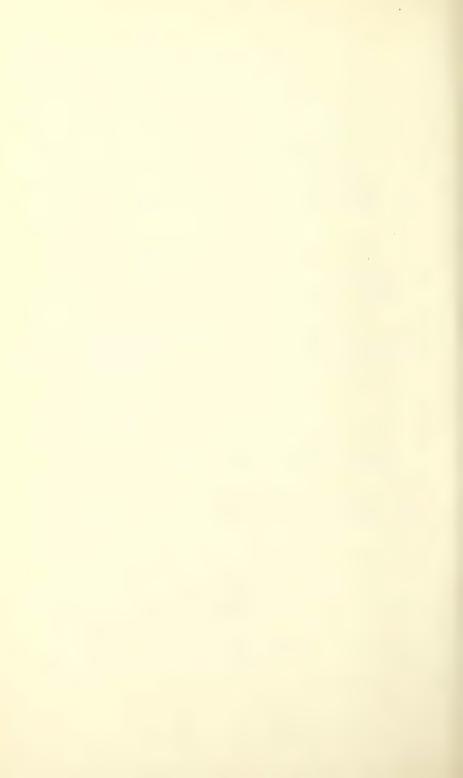
												Year.
IN.	IN.	IN.	IN.	IN.	IN.	и.	IN.	IN.	IN.	IN.	in.	IN.
4·30	2·13	1·20	0.61	1·42	2·41	0.63	1·45	1.57	3·95	4.61	2·37	26.65

CREE FLEET, CUMBERLAND GATE, KEW, SURREY.

Observer-Robert C. Peirce. Gauge 5 in. in diameter.

Height of gauge above ground, 1 ft. 5 in. Height of station above sea-level, 22 feet.

	1											Year.
1N.	IN.											
3·18	1.77	1·11	0.55	1.24	3.05	1·16	0.71	1.84	3·45	3.86	2·14	24·06



# APPENDIX I.

# CROYDON NATURAL HISTORY AND SCIENTIFIC SOCIETY

(Meteorological Committee.)

STATIONS.	Observers.	Size of Gauge.	Height above Ground.	Height of Statn.ab. Sea-level.
		IN.	FT. IN.	FT.
Holmbury St. Mary (Ioldwynds)	F. Cornish	5	1 0	530
Abinger (The Rectory)	Miss Brodie-Hall	5	1 0	381
Abinger (The Hall)	The Lord Farrer	8	2 0	320
Dorking (Denbies)	J. Beesley	5	0 6	610
Redhill (Linkfield Lane)	Mrs. Stephenson	5	1 0	350
Nutfield (The Priory, old gauge)	J. Moffatt	8	1 2	468
Nutfield (The Priory, new gauge)	J. Moffatt	8	1 2	331
South Nutfield (Hale Edge)	R. C. Grant	5	1 0	270
Buckland (Hartswood)	R. W. Clutton	5	1 0	174
Reigate Hill (Nutwood Lodge)	H. Gurney	5	1 0	440
Upper Gatton (The Park)	F. Druce	5	1 0	600
Merstham (Rockshaw Lodge)	T. W. Hill	5	1 0	475
Chipstead (Shabden Park)	J. Crerar	5	1 0	550
Chaldon (The Rectory)	Rev. G. E. Belcher	5	1 0	542
Caterham (Metropolitan Asylum)	P. E. Campbell, M.D.	5	1 0	610
Westerham (Hill Estate)	W. Morris	5	1 0	539
Westerham (The Town)	W. Morris	5	1 0	380
Knockholt Beeches (Field Gauge)	W. Morris	5	1 0	785
Knockholt Beeches (Tower Gauge)	W. Morris	5	24 6	812
Chevening (The Park)	C. Sutton	5	1 0	360
		5	1 10	1,500
Sevenoaks (St. John's Hill) Chelsham (Fairchildes)	W. W. Wagstaffe	8	1 0	600
Warlingham (Egremont)	A. S. Daniell	5	1 0	614
	H. Rogers	5	1 0	282
Kenley (Hazelea)	Mrs. Carr-Dyer J. V. Brett	5	1 0	300
Sanderstead (The Red House)		5	1 0	320
	Capt. Carpenter, R.N.	5	1 0	360
Purley (Riddlesdown Road)	J. E. Clark	8	1 0	580
Burgh Heath (The Reservoir)	Sutton Dis. Water Co.	5	1 3	450
Hedley (The Hurst)	Mrs. Lyall	5	1 0	250
Leatherhead (Downside)	A. Tate Part	5	1 0	280
D'Abernon Chase	Sir W. Vincent, Bart.	5	1 0	212
Oxshott (Beverstone)	W. H. Dines	5	1 0	160
Epsom (Ashley Road)	S. C. Russell	8	1 0	480
Banstead (The Hall)	Mrs. Maitland	5	1 0	110
Sutton (Carshalton Road)	Sutton Dis. Water Co. C. Chambers Smith	8	1 0	94
Sutton (Sewage Works)		5	1 3	125
Benhilton (Angel Hill)	J. C. M. Stanton	5	1 0	118
Carshalton (Sewage Works)	W. W. Gale	5	4 1	140
Wallington (Maldon Road)	F. Campbell-Bayard	5	1 0	120
Beddington (Riverside)	S. Rostron		1 0	130
Croydon (Brimstone Barn)	Croydon Corporation	5		146
Croydon (Waddon New Road)	Croydon Corporation	5 8	$\begin{vmatrix} 1 & 0 \\ 1 & 0 \end{vmatrix}$	158
Croydon (Duppas House)	Baldwin Latham		1 6	183
Croydon (Woburn Road)	A. Malden	5		250
Croydon (Park Hill Rise)	H. F. Parsons, M.D.	5	$\begin{vmatrix} 1 & 0 \\ 1 & 0 \end{vmatrix}$	225
Croydon (Avondale Road)	Dr. G. J. Hinde			473
Addington Hills (The Reservoir)	Croydon Corporation	8	0 9	331
Addington (Pumping Station)	Croydon Corporation		1	
West Wickham (Wickham Court)	Sir H. F. Lennard, Bt.	9	1 2	300

STATIONS.	Observers.	Size of Gauge.	Height above Ground.	Height of Statn. ab. Sea-level.
Hayes (Hayes Place) Keston (Forest Lodge) Orpington (Waterworks) Southfleet (Waterworks) Southfleet (Waterworks) Chislehurst (Hawkwood) Bickley (The High Field) Bromley (The Palace) Bromley Common (Elmfield) Beckenham (Wickham Road) Anerley (The Town Hall) South Norwood (Woodvale) Beddington Corner (Millgreen Rd.) Morden (Steel Hawes) Wimbledon (Sewage Works) Wimbledon (The Downs) Wimbledon (The Windmill) Raynes Park (Pumping Station) New Malden (Sewage Works) Worcester Park (Manor Lodge) Esher (Sewage Works) West Molesey (The Waterworks) Surbiton (The Waterworks) Kingston (Sewage Works) Kingston (Sewage Works) Kingston (Sewage Works) Kingston (County Hall) Richmond (The Terrace) Kew (Kew Gardens Road) Putney Heath (The Reservoirs) Wandsworth Com, (Patten Road) Streatham (Conyers Rd. Waterw.) West Norwood (Thornlaw Road) Up. Norwood (Dulwich-wood Park) Forest Hill (Dartmouth Road) Forest Hill (Dartmouth Road)	J. Grandfield W. H. Dodgson W. Morris W. Morris W. Morris Miss M. C. Edlmann J. Batten Coles Child Rev. J. P. Faunthorpe E. Scovell H. W. Longdin E. Dean G. Miller Miss R. Hames C. H. Cooper Francis Fox Jesse Reeves C. H. Cooper T. V. H. Davison F. D. Outram A. J. Henderson H. E. H. Wrinch F. J. Brodie J. W. Restler W. Marriott H. V. Caldicott L. W. F. Behrens J. W. Restler	Green en	FT. IN.  1 0 1 0 1 0 1 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 0 0 0 1 0 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 0 1 0	Text   Text
Forest Hill (Camberwell Cemetery) Sidcup (Park Road)	W. Oxtoby L. A. Sharman W. Morris Lieut-Col. C. N. Kidd Cap. D. Wilson-Barker W. Morris J. W. Restler W. Oxtoby	0 8 5 5 5 5 5 5 6 8 8	1 0 2 2 1 0 1 0 1 3 5 0 1 0 4 0 2 2 1 0	160 230 25 100 30 245 176 58
Brockwell Park Brixton (Acre Lane) Clapham Park (New Park Road) Battersea Park Battersea (Waterworks) Camberwell (The Green) Camberwell (Town Hall) Camberwell (Leyton Square) Telegraph Hill Greenwich (Royal Observatory) Deptford (Waterworks) Southwark Park	Lond. County Council F. Gaster D. W. Horner Lond. County Council J. W. Restler W. Oxtoby W. Oxtoby W. Oxtoby Lond. County Council Astronomer Royal W. Morris Lond. County Council	8 5 5 5 8 8 5 8 5 8 5	1 0 1 3 9 6 3 0 2 2 49 0 2 2 8 6 0 5 1 0	140 77 128 12 21 17 21 14 135 155 20 9

Note.—The observations are taken at 9 a.m., except at Kingston (County Hall) and Streatham (7.30 a.m.), Reigate Hill, Purley, Greenhithe, and Brixton (8 a.m.), and Sevenoaks, Battersea Park, and Southwark Park (10 a.m.).

The

January, 1900.

stead Sander-

(Flace Fell)

Number   N	Kenlev																							_									143	
Continuent		i.	.01	•16	.50	.36	.50	:	.23	.01	.19	,3	•24	.55	$\cdot 05$	.03	.11	·94	90.	.29	:	•19	.02	;	• (	000	9.0	i	•	.04	:	:	4.85	:
Comparison	_	IN.	.03	.18	.64	.45	.53	:	.33	•03	.20	;	.31	•74	60.	.01	.11	1.36	80.	.27	:	.19	.02	:	• t	300	50		:	90.	:	•	80.9	:
Continue	Chelsham	iN.													•п	ρΩ	₽Đ	х	тн	LTN	101	U											5.05	:
Continued   Cont	Зечеповка	IN.	:	.10	.65	·45	.42		.32	.05	60.	:	.25	62.	.03	:	80.	1.21	.07	.17	:	.10	.01	:	• 6	66.	60		:				5.27	:
Holmbury		IN.	:	•14	29.	.42	.53	10:	.31	:	.20	:	.33	.81	:	.01	60.	1.41	.07	.25	:	.12	.02	:	• 0	22.0	0 :		:	90.	:	:	5.95	:
Holmbury  Holmbu		IN.	:	.10	.50	.31	•34	:	.23	:	.12	:	.17	.49	•04	.02	.05	1.10	÷0.	.12	:	80.	.01	:	• 6	90.	3 :			.04	:	•	4.20	:
Holymory		IN.	:	.13	.58	.42	.50	:	.29	:	.21	:	.32	.78	90.	•04	80.	1.48	90.	.25	:	.11	.01	:	• • •	40	5 3			.05	:	:	5.90	:
## Holmbury    Holmbury   Holmbur	Westerham (TowoT)	IN.	:	:	.63	.49	.44	.02	.32	•04	.15	:	.26	:91	.03	.01	.05	1.20	80.	.50	:	.17	.03	:		10	1 0			90.	:	:	5.58	:
Columbia	Westerham (Hill Est.)	IN.	:	•16	.46	.51	.47	:	•34	.02	.15	•	.58	.78	.05	·04	60.	1.27	.03	.25	:	.14	.05	:	06.	60	: :			.15	:	:	5.60	:
Abinger   Abin	Caterham	IN.	.03	.22	.61	•44	.54	:	.30	.01	$\cdot 25$	:	.25	.79	80.	.01	60.	1.38	90.	.25	0.	.11	.03	•		01.				.05	:	:	6.03	:
Holmbury	Chaldon	IN.	.01	.24	.61	.48	.46	:	.25	•03	.24	:	.37	883	80.	.01	•08	1.29	.13	.15	:	ij	.01	:		.06	3 :		: :	90.	:	:	5.64	:
Holmbury  1. Set. Mary  2. Set. 20	Chipstead	IN.	.03	.58	.65	•44	.63	:	.33	.01	.21	:	.24	·64	90.	0.1	.12	·94	90.	•34	•	•10	.01	:	• 6	00.	5			.05	:	:	5.54	٠:
Holymoury   Holy	Merstham	IN.	.01	•23	.56	.42	.48	:	.58	.03	.19	•	.21	08.	.05	.03	80.	1.46	90.	.21	:	ij	.03	•	:40	.11	1 :			: :	:	. •	5.74	:
Holmbury  H. N. I.N. I.N. I.N. I.N. I.N. I.N. I.N.	Upper Gatton	IN.	.01	.56	.65	.46	.58	:	.58	.03	.56	•,	.56	29.	60.	.01	•10	1.24	80.	.34		.16	0	:	: 5	17.	4 .			.05		:	6.04	:
Holmbury  1. N. I.	HeigateHill	IN.	0.	.24	.58	38	.47	•	.23	.01	.50	.01	•24	.56	.13	.01	20.	1.16	.03	.25	:	<b>#</b> [.	.02			17	1		7	90.	:	•	5.13	:
Holmbury	Buckland	IN.	.01	.31	.63	.45	.40	.01	.24	.03	.19	:	.30	.72	80.	.03	60.	1.26	.05	.20	:	60.	.01	:	• 6	00.	3				:	:	5.55	:
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Holmbury	(new gauge)	IN.	.01	•24	.52	.41	.47		.25	•03	.19	:	.30	.81	•05	.03	.10	1.22	.05	•56	.02	·15	.02	:	• 6	000	+ -			.05	.01	:	5.65	:
Molmbury   National		IN.	.01	.22	.43	.36	.34	.02	.22	.02	.15	.01	.22	.61	•10	.02	80.	1.07	.02	.22	.02	15	.02	:		47.	90	) ;		90.	.01	:	4.78	:
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The figures in this row give the totals for the month.

The totals from January 1st.

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Daily Rainfall.

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Worcester	IN.	:	•14	-27	.26	.41	:	•14	.03	.11	• 1	.17	.55	:	:	•04	.63	90.	•13	•	60.	.0	:	• 6	000	co.	:	:		.05	:	:	3.45	:
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Raynes Park	IN.	.:	60.	.23	.24	.35	:	.13	.01	.13	• 1	.17	.56	.01	:	.05	.71	20.	.50	:	.12	•04	:	• (	0.00	₹0.	:	:	•	.03	:	:	3.48	:
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Wimbledon (Sew.Wks.)	IN.	:	.07	.22	.21	.36	.26	.13	.01	.25	• 0	.16	.55	:	:	20.	08.	80.	ç1.		91.		:	• (	08.	90.	:	:		÷0.	:	•	3.85	:
Morden	IN.	.01	•10	.30	.33	.27	.01	.15	.02	:13	.01	.1.	.61	:	:	•03	.70	.10	.15	:	.18	90.	:	• 1	. 20	en.	:	:	. !	90.	• 1	•01	3.78	:
Beddington Corner	IN.		80.	.35	.24	.35	.01	.13	.01	.10	• 1	91.	.59	•04	:	.03	.80	90.	.13		.16	.03	:	:	رن در بر	cn.	:	:	. (	.03	•	:	3.68	:
South	IN.	•01	÷0.	•35	.24	.38	.01	.11	.01	.10	* 1 * 7	cT.	09.	.03	.01	:	.83	90.	:13	• 1	Ξ.	.03	:	• 7	70.	<b>.</b> 04	:	:	. (	•03	:	:	3.47	:
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Chislehurst ————————————————————————————————————	,		_																•20						_	_	:	:	• 6	£0.	:		3.89	:
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† The totals from January 1st. \* The figures in this row give the totals for the month.

Daily Rainfall.

Southwark Park	IN.		.12	.0.	0.00	9 66	3	.17		.15	:	91.	09.	:	:	.10	•55	.12	·11	:	80.	:	:	96.	.02	:	:	•	•	:	:	3.40	•
Deptford	IN.	•	90.	86.	91.			1.	.01	.26	:	·14	.59	.02		.03	.71	.05	.20		60.	.05			· 0	:	:		₹O.	•	:	3.49	•
АзічпээчЭ	IN.	:	80.	.28	.52	.36	.01	.17	.01	•23	•	$\cdot 16$	.61	.01	:	.03	.73	.08	$\cdot 21$	•	.10	.03	:	• • •	FO.	:	:	: 3	0	:		3.71	:
Telegraph Hill	IN.		.12	.27	.50	35		.17		.23		Ţ.	.38	·0·1		.05	.71	60.	.19	:	.10		:	• 60	90.	:	:		10	:	:	3.71	:
Cambe'well (Leytonsq.)	IN.		:15	.22	.25	.29	.01	•14	.01	.13	. 1	.II.	Ť.			90.	ST.	60.	.10		-07	•03		. [-	.02	•	:	: 5	7			2.40	:
Cambe'well (Town Ha.)	IN.	:	.08	.18	.16	.29		.16	:	.19	• 1	15	÷3+	20.	:	.03	97.	.03	.10		.01	.02	•	:6:	.05		:		•	:		2.50	:
(TheGreen)	IN.	:	-	.19	.19	.25	60.	.12		.18	• 1	T.	.39	.05		00.	0T.	90.	ili	:	s0.	.03	:	06.	.02		:	.0.	2	:		₹9.7	:
Battersea.)	IN.		.07	.20	-21	.31		·15	.01	.13	• 1	TT.	30	.01	• (	60.	Ic.	80.	: H	. 0	90.	.01	:	6.6.	.0.	:	:	.03	3		: 0	3.0.5	
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Brixton	IN:	. !	.12	.25	.12	67.		.56	:	.23	. 7	Τ. ·	₹-C.	<u>00.</u>	• (	01.	99	.03	.21	. 0	60.	.0 .0	:	. 6	.10		:	.00.	3			3.63	
Вгоскwеll Рагк	IN.		.08	.33	.27	.38	•	.15	.03	.25	• 0	91.	.70	:	. 0	.03	.81	60.	·Is	•	-07	.05	:	• 67	.03		:	.0.	2	•		4.05	:
East Dulwich	IN.		.12	.22	.18	.36	.01	133	.01	14	. (	2000	.42	+0·	. (	-05	.58	-07	60.	:	.07	.05	:	1.6.	0.5	:	:	:00	1 )				:
Липрева	IN.		20.	.23	·IS	•33	:	:13	-0.5	·14	* (	80.	.55	.01	. (	70.	.59	90.	.13		•05	.02	:	. 3	.03	:	:	:00	2		. 0	2.93	:
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9dtida991D	IN.	:	:	111	60.	.15	:	.05	.03	60.	* 1	.01	.3 <del>1</del>	60.	. !	.10	.59	.10	90.		90.	:	:	:00	91.		:	:		:		2.12	:
Dartford	IN.	•	:	.27	.15	.35		.11	.03	17	• 0	13	<u>e</u> 9.	•03	• 1	20.	s S	•05	17		20.	.01	:	.34	•04	:	:	:0:	70		.	5.53	:
-gaimliW aot	IN.	.01	•03	.25	.16	.42	.01	.11	.02	.18	• 1	IT.	09.	.05	• 1	20.	.83	.02	.18		20.	.01	:	. 00	.07	:	:	60.	5		-	2.13	:
guobis	IN.		.03	•25	.19	11.	.01	·14	.01	.17	• ( • 7	7.T.	-63	.03	. 0	90.	68.	•03	.17		01.	.01	:	.36	÷0.		:	60.	1	:		2.67	:
Forest Hill (Cemetery)	IN.	•	.07	.27	.21	60.	:	•03	.01	.15	. 1	77.	.46		. !	.03	₹g.	90.	•14	:	20.	.02	:	. c.	.05	:	:	60.	40	. [		79.7	:
IliH tasro¶ (.br.O.noH)	IN.	.01	•05	.27	.20	-37	:	.12	-03	•19	• 1	91.	-67	.03	.01	.05	.65	80.	.19	:	60.	•03	:	• 00	.03	:	:		20	.0.	100	3.61	:
Forest Hill (Dartm.rd.)		.02	•04	.25	.27	.25	90.	.12	.03	.23			_	.02							.07		:	• č.	÷0.	:	:	. 5	TO	:		3.47	:
U. Norwood (Dul. W.Pk.)	ż								.02		. !	91.	.61	.03	.01	•03	.62	-07	.17	:	÷08	·04			.05	:	:	60.	20	:	: []	3.55	:
West Norwood		:	90.	.28	.21	•39	.05	.12	.01	.26	•	.16	75.	.03		•04	-67	·08	.18		.10	•03	:	. 10	•04	:	:	60.	60.	:		3.63	:
Day of Mo.	_		7	00	4		9	-	00	6	10	11	12	13	14	15	16	17	18	19	20	21	22	23	20.0	26	27	0 00	22.0	000			+

\* The figures in this row give the totals for the month.

+ The totals from January 1st.

# NOTES.

#### JANUARY, 1906.

THE month has been exceeding wet and mild, with a total absence of snow. A severe thunderstorm, accompanied by hail of 1 in. in diameter in many places, and rain, occurred on the 9th throughout the district between 1.45 and 2.30 p.m.; and on the 16th there was an exceedingly heavy rain at night, amounting to over an inch in very many places in the district, and at Knockholt to 1 48 in. A rainfall of an inch and above is not usual in January. The rainfall is the heaviest January one since 1877. As showing the mildness of the month, snowdrops flowered at Morden on the 1st, at Croydon on the 6th, and Nutfield on the 17th; winter aconite at Croydon and Nutfield on the 4th; yellow crocus at Croydon on the 18th, and at Nutfield on the 30th; and Scilla bifolia at Croydon on the 29th. Abinger the doves paired early, and there were by the end of the month young ones several days old. The observer at Nutfield complains bitterly of the mischief done by sparrows, bullfinches, and tits in the garden. A bat was seen flying in the Bute Road, Wallington, at 5 p.m. on the 26th. Solar haloes were seen at Greenwich on the 7th, 11th, 15th, 17th, and 31st, at Epsom on the 11th and 31st, and at Upper Gatton on the 11th; whilst lunar ones were seen at Epsom on the 2nd, 5th, and 9th, and at Greenwich on the 5th. The month as a rule has been a healthy The rainfall is nearly double the January average. mean temperature of the month is 4° above the January average, and was at Croydon (Duppas House) and Wallington 42°2, at Worcester Park 41°·8, at Epsom 41°·3, at Warlingham 41°·0, and at Chipstead 40°.0. There were recorded at Wallington 72.3 hours of sunlight, the highest January value, with the exception of January, 1905, which is 26.4 hours or eleven per cent. above the January average of the twenty years 1886-1905.

> F. Campbell-Bayard, F.R.Met.Soc., Hon. Sec.

# NOTES.

#### FEBRUARY, 1906.

The month has been very changeable, but without severe or continuous frosts or heavy snow. There was, on the 8th, a severe thunderstorm with hail, which at Epsom was about the size of small marbles, and the lightning of two colours, purple and blue. There were slight showers of snow on many days, and there were also many days with brisk winds. Solar haloes were seen at Greenwich on eight days, at Epsom on five days, at Upper Gatton on three days, and at Purley and Wallington on one day; whilst lunar haloes were observed at Greenwich and Epsom on three days, and at Purley on one day. The district as a whole has been healthy, though catarrhs have been prevalent, and there was influenza at Sevenoaks, and measles at Nutfield. Rooks began to build at Nutfield on the 13th. rainfall is about one-fifth above the February average, and the observer at Purley remarks that the rainfall of the two months of January and February is just four times that of the same months of last year. The mean temperature of the district is about the average, and was at Wallington 39°.3, at Croydon (Duppas House) 39°·0, at Worcester Park 38°·7, at Epsom 38°·0, at Warlingham 37°2, and at Chipstead 36°3. There were recorded at Wallington 70.7 hours of sunlight, which is 6.8 hours or two per cent. above the February average of the twenty years 1886-1905.

F. CAMPBELL-BAYARD, F.R.Met.Soc., Hon. Sec. February, 1906.

Daily Rainfall.

Sander- stead	IN.	60.	•03	20.	.03	:	.02	0.	.19	.13	.25	·04	•	0.	.34	.15	.36	.45	.14	.04	:	:	• (	.03	Ţ.	• 6	50.	60.	:	2.57	7.47	
Kenley (Place Fell)	IN.	.03	•04	90.	•	:	.03		.20	•14	.23	.03	:	20.	.41	•14	.34	.47	.11	•04	:	:	: 3	÷0.		• 7	11.	80.	TO:	2.69	06.7	
Kenley (Hazelea)	IN.	70.	•04	.05	·01	•05	.02	.01	.18	·15	.20	•03	•	•04	.42	·14	.34	.46	11	.03	:	• 6	TO.	70.	01.	0.	OT.	.07	To.	2.63	7.47	
-SailraW mad	N.	÷0.	90.	•05	.03	•	•05	:	.18	.28	.22	.03	:	•08	09.	.15	.55	·44	.11	.04	:	• 6	50.	10.	.12	• 1	Τ.T.	80.	:	3.24	9.32	
Chelsham	IN.											• 🗉	Ðſ	JA	9 .	ľZ	HI	NC	VI (											2.67	7.72	-
Sevenoaks	IN.	70.	•04	.05	:	:	$\cdot 05$	:	.18	:	.17	.03	:	90.	.25	.11	.48	.34	•14	.03	:	• 6	70.	.03	.12	• 0	OT.	.03	:	2.21	7.48	) i
Chevening Park	IN.	20.	.07	.05	:	:	:	:	.12	.25	.17	•03	:	$90 \cdot$	•19	.21	.39	.54	.23	:	:	:	• (	÷0.	.16	• 0	77.	:	:	2.65	8.60	3
Knockholt (tower ga.)	N.	TO.	.03	÷0.	•	:	.*	:	20.	.05	.18	.01	:	•03	•19	.13	.36	.40	.17	.02	:	:	:		60.	• •	01.	70.	:	1.90	6.10	)
Knockholt (field gau.)	IN.	60.	•04	90.	:	:	:	:	.16	·15	.29	.03	•	60.	.21	.21	.56	.43	•19	.04	:	:	•	•	.17	• •	TT.	.05	• .	28.2	8.72	!
msdrətesW (nwoT)	IN.	• •	.1 <del>4</del>	.07	:	:	:	:	.58	.21	.18	<u>.</u> 00	:	:	.35	.14	.46	.35	.12	$\cdot 0^{\tilde{2}}$	:	:		• (	.18	• 0	77.		:	2.77	35.	3
Westerham (Hill Est.)	IN.	60.	÷0.	-07	.01	:	:	:	.24	.19	.23	•04	:	-02	.32	.17	<b>F</b> <u>G</u> .	.40	.16	:	:	:	. (	40.	.16	• 6	.13	80.	.01	2.93	8.53	3
Caterham	IN.	60.	.0 <sub>4</sub>	90.	.01	:	.03	:	-14	.27	•25	.03	:	0.5	.58	.13	.45	·45	.10	•04	:	:	• (	.04	.12		*I.	80.	10.	3.02	9.05	
Chaldon	IN.	en.	90.	•04		.02	.02	:	.50	.28	.50	.03	:	90.	.43	.14	£.	.43	60.	.05	:	:	. (	÷0.	ij	• 7	-T-T	80.	:	2.90	8.54	3
Chipstead	IN.	.O.	<del>1</del> 0.	90.	:	.01	.01	:	•25	.23	.22	.02	:	90.	.43	.16	•44	.43	ī	.05	.01	:	• (	-04	.12	• 1	II.	90.	:	2.87	8.41	1
Madterellam	IN.	RO.		:		:	:	:	.30	.22	.18	:	.:	60.	.43	.11	.44	.38	-11	.03	:	•,		÷0.	7	• 0	71.	90.	:	2.76	8.50	3
Upper Gatton	IN.	£0.	co.	90.	.03	:	.03	:	.16	.24	.24	.04	:	90.	.35	•14	.43	.45	.10	$\cdot 05$	.01	• 0	70.	.03	.12	• 1	CT.	90.	:	2.85	8.89	3
HeigateH	IN.	co.	:	.14	.03	:	:	.03	:50	.16	.27	÷0.	:	.05	.25	·15	.37	.43	11	.04	:	• 6	20.	÷0.	.10	• 0	71.	90.	:	2.64	7.76	>
Buckland	IN.	co.	.03	.10	•01	:	.02	:	.15	.19	.20	.01	:	80.	.37	60.	.38	.42	90.	.03	:	• 1	<u>c</u> 0.	·04	.12	• h	0T.	•04	.01	2.59	8:14	1
South	in.	60.	·04	.07	.01	:	.01	:	.14	.19	.50	.05	:	÷0.	.45	.10	.38	•35	.11	•03	:	. 0	.03	•04	ij		£1.	.05	:	2.54	7.51	3
Nutfield (newgauge)	IN.	.03	<u>6</u> 0.	20.	•05	:	.03	:	.21	.20	.21	•03		90.	.42	.12	•44	.36	.10	.04	.01	• (	70.	.03	.12	• (	71.	02	:	2.73	8.32	5
Nutfield (old gauge)	IN.	.03	.05	80.	:05	:	.02		.21	.20	.18	•03		•04	•39	80.	.37	.35	.10	.03	.03	(	0.5	.05	60.	• (	71.	.05	:	2.53	7.31	5
Hedhill (Linkfd.la.)	IN.	#O.	90.	.12	:		•03		.50	.23	.25	:	:	90.	.35	.16	•44	.37	20.	.05	•	• (	.04 T	.05	·14	• •	91.	.08	.01	2.90	9.07	
Dorking (Denbies)	IN.	70.	.10	•05	:	:	:		.21	.15	.20	.03	:	•08	.10	.12	.40	.47	.15	20.	•	• (	90.	:	.12	• 1	•14	.05	:	2.52	8.03	0
Abinger (The Hall)	IN.	TO.	90.	01.	:	:	:	•	•19	.15	.18	.05	:	80.	80.	.12	.38	.43	.15	20.	•	• 1	•05	:	ij	• (	.T	.05	:	2.39	7.84	H 50
Abinger (Rectory)	IN.	70.	-02	80.	:	:	:	:	.15	.26	.12	.01	:	.10	.31	80.	.41	·45	•19	•05	:	• !	.12	.03	.13	• !	.17	:	:	2.75	9.66	00.0
Holmbury St. Mary	IN.	.03	20.	-11	•	:	•03	:	•16	.24	.20	•04	:	80.	.21	60.	.46	-42	.17	90.	1.	• (	90.	•04	.15	• 1	.17	60.	:	2.88	a	00.0
Day of Mo.	1	-	0.7	က	4	20	9	2	00	6	10	I	12	13	14	15	16	17	18	19	20	21	22	23	24	25	56	27	28	*	+	_

\* The figures in this row give the totals for the month.

† The totals from January 1st.

notgaiq10	IN.	.01	·0 <del>4</del>	.05	.01	0.7	.01		<b>14</b>	91.	200	.03	• 0	90.	.27	.20	.30	.50	.16	.03	:	:	:		.10	.0.	000	-03	•	2.35	C	60
.motseM	IN.	.03		90.		. (		•	. (	67.	.56	•04	:		77.	91.	.33	.53	.23	.05	:		. (	70.	.10	• • •	20.	60.	TO.	2.72	1	66.)
Hayes	IN.	.03	¥0.	80.	·04	. 0	.03	• 6	07.	01.	.27	Ŧ0.	. 1	20.	98.	.13	.29	.50	$\cdot 16$	.03		:	. 0	.03	80.	.00	000	<u>c</u> 0.	•	2.61	- 00	06.9
West	IN.	.01	so.	20.	:	. (	-05	• (	80.	in i	.27	•04	0 1	20.	.56	.10	:33	.56	.15	Ŧ0.	:	. (	.0.5	.03	90.	. 0	00.	90.	:	2.76	1	01.1
Addington .ts.qmu¶)	IN.	•05	.03	20.	.01		.03	• 5	91.	.16	.24	.03	• 1	.07	₹ <u>0</u> .	.13	.33	.46	.11	₹0.	:	:		.01	.10	• 6	OT.	20.	70.	2.71	1	7.59
notgaibbA slliH	IN.	.02	.03	90.	.01		.03	- 1	cT.	7	.19	₹0.		90.	.41	.11	16.	97.	.13	.03	:	:		.05	00.		70.	0.	:	2.40	-	7.21
Croydon (Avond rd.	IN.	.03	.03	90.	.03		.05	• (	25.	.15	.30	FO.	:	.05	.85	.12	.31	97.	.10	.03	:		.01	.05	80.	• 6	20.	90.	:	2.47		7·±0
Croydon (Park Hill	IN:	.01	:	90.	.01	•	.01		1	.10	<b>†I</b> •	70.	:	₹0.	.31	90.	37	.43	.11	.03	:	:	:	.01	90.	. (	20.	0.0	:	1.94		6.05
Oroydon (Wob. rd.)	IN.	.01	.03	0.0	:	:	.03	•	7	.15	.11	.05	:		.31	90.	.27	ST.	.10	.01	•	:	•	:	20.	0 0	200	.05	:	1.91		5.99
Croydon (Dup. H.)	IN.	.05	.0.5	.05	.01	:	.03	.01	07.	14	.19	.03		.03	.35	.08	3.53	.43	.10	.03	:	:	:	.01	.07	• 6	80.	0.		80.6	2	6.38
Oroydon (Vn.N.rd.)	IN.	.05		90.	.01	•	.03	*	.50	.12	ŦĮ.	.03	:	Ŧ 0.	.30	20.	.30	87.	.08	.02	:	:	:	.01	20.		80.	90.	:	9.10	1	6.53
Croydon (Brim. Bn.)	IN.	.01		90.		•	.05		.16	.10	12	.05		0.0	.24	10.	.95	1	.08	.01	:	:	:	.10	0.0		80.	.05	:	9.00	20 4	5.91
Bedding- ton	IN.	.03	.01	90.		:	.03	•	.18	.13	ŤŢ.	.03		FO.	.28	20.	.28	17.	60.	.03	:	:	:	.0.	20.	• !	.10	90.	*	9.03	1	6.45
aotzaillsW	IN.	.02	.04	90.	:		.02		.17	:15	.15	Ŧ0.		.03	.22	20.	86.	.46	.10	.03	•				.07	:	.10	90.		9.0.1	1	6.50
Carshalton	N.	:	¥0.	90.	:	:	.12	:	.18	01.	80.	.03	:	Ŧ0.	.17	Ŧ0.	86.	07.	.17	.0.5	:	:	:	:	.05		20.	20.		1.09	7 00	5.85
Benhilton	IN.	.01	Ŧ0.	Ŧ0.		:	.01	:	.17	60.	.05	.02	:	•03	.17	. 0	96.	45.	20.	.01			.01		.03		90.	90.	:	1.60	7 00	4.30
Sutton (Sew.Wks.)	IN.	.03	:	<b>F</b> 0.	:	:	•	•	. CT.	.12	$\tilde{c}0$ .	:	:	90.	.17	.05	3 30	3 30	.12	.02	:	:	:	:	.05	:	.08		•	1.65	200 1	5.44
Sutton (Waterwk.)	N.												°N	тE	OJ	S	FE	ים	7Đ													
Banstead	IN.	.03	+0.	90.			.03		.16	.17	ŤĮ.	.03	:	+0.	083	3 :	08.	15	.07	÷ 0.	.01				.13		-	90.		0.00	66.7	7.26
Epsom	1 2	.00	70.	90.	.01		.03	.01	.12	-	=	.03	0.	90.	.17	• 000	000	077	200	.03	.01	;	+0.	60.	90.	:	.07	.04	•	1.00	CO.T	¥0.9
HodexO	K	.03	0.00	.0.	.01			:	-13	=	10	.02		.07	16	20.	000	000	4 0	.00			÷	70.	.05		90.	FO.		1	T. (4	5.74
D'Abernon Chase	×	10.	60.	20.	5 :		.03		10	80.	.10	70.		90.	001.	07.	00.	64.	14.	5	• •		.00		.05		90.	FO.		1.01	19.1	<b>FL-9</b>
Leather- head	2	•04	.03	.07					.25	90.	.12	.03		60.		11.	100	# O F .	α.	40.			•04	120	90.	:	.12	.05	.01	0.00	2.00	19.9
Неядіеу	2	.05	.03	20	.01	:			.22	61.	000	) •		-19	1.6.	27.	200	100	20.	90.			90.	)		:	-14	.05	:	0.40	07.7	1.74
Burgh Burgh	N N	.03	300	90.	1 .		.03	:	7	.63	-17	.03		¥0.	96.	041.	26.	000	240.	0.0	.04	•01	.03	.0.	11.	:	-	Ŧ0.		0.61	T#.2	7.36
Purley	N	.03	60.	200	.01	:	.03		. 17	.19	16.	0.00		.07	2 00	3 :	50.	2	-17	.03	) •	:			: ::	:	60.	90.	.01	0.00	70.7	8.04
Oay of Mo.	1	-	10	1 cc	4	7.0	9	_	00	0.	2	7 7	19	130	2 -	# 20	707	170	- 0	0 0	20	21	22	53	27	25	26	27	28		*	+

Southfleet

Day of Mo.

· 03 · 03 · 01

Streatham	I X	-05	.03	.05	:	:	:		.16	•10	.03	:	:	:	.10	•04	.20	.42	.10	.03	:	:	:	• •	₹0.	: 3	90.	₹0.	.01	1.43	0	4.66
Wandswth.	E	.01	•03	90.	:		.01	:	.18	.13	90.	.03	:	.03	.13	.03	.25	98.	.12	90.	:	• 7	To.	Ĭ0.	co.	• 0	000	50.	:	1.68	2	67.0
Putney Heath	N	.02	.02	•04	:	•	-05	•	01.	11.	.12	.03	:	•03	.11	.03	.24	.36	.10	.05	•	. (	70.	• • •	on.	• 1	00.	20.	:	1.58	1	11.6
Мем	N X	.01	.03	.05	.03	•	.05	:	II.	.12	.13	.03	:	.03	.17	Ŧ0.	.25	.41	60.	$\tilde{c}0$ .	:	. (	20.	• 6	SO.	• 6	200	70.	:	1.81	1	5.31
Bichmond	l K	.01	:	.03		:	.03	:	Ħ.	.11	80.	.01	:	.02	.18	.03	.17	.38	.10	.03	:	:	:	• 6	ño.	• (	co.	<del>†</del> 0.	:	1.47		4.47
Kingston (CountyH.)	IN.	.03	.03	90.	:	:	:	:	.15	60.	.14	:	•	.05	.15	·0 <del>4</del>	.24	.46	.10	:	:	•	.03		90.	• (	en.	ු ල	:	1.73		5.34
Kingston (Sew.Wks.)	K	.01	.03	•04	:	:	.02	.01	.17	60.	.10	.01	.01	.03	.15	.03	.27	<u>c</u> 7.	.05	.01	:	:		.01	90.	: (	₹0.	90.	:	1.67		5.53
Surbiton	, X	:	.03	.04	:	:	.01	:	.18	.11	.10	.01	:	.03	•14	.03	.28	.38	90.	.01	:		70.		900	• 0	90.	ŧ0.	.01	1.59	1	5.18
West Molesey	1 X	.03	.03	.04	.01	:	.03	:	.133	.11	.13	.01		.03	.15	.03	·24	•38	14	.01	.02	:	:	• 0	90.		.04 .05	÷0.	•	1.61		5.11
Esher	X	.03	.03	•04	:	:	:	:	.13	.10	60.	:	:	.04	čI.	.03	.27	•39	.10	.01	:	•	.05	(	÷0.	• 3	en.	.03	:	1.53		4.77
Worcester Park	K.	.03	·0·	$\cdot 0\tilde{5}$	.01	:	.03	:	E.	.13	20.	.03	:	•03	111	•03	.28	•44	90.	.01	:	•	.05		<u>ē</u> 0.	• 1	<i>)</i> .0.	•04	:	1.65		2.10
New Malden	X	:	.03	.03	:	:	.05	:	90.	.12	.05	:	:	.02	.12	.03	.24	.38	90.	:	:	:	.01		TO	• 0	gņ.	₹O.	:	1.30		4.37
Raynes Park	K.	.03	:	90.	•	:	:	:	.17	11.	90.	.01	:	.03	•14	.02	.26	.39	90.	.01	:	:	•	• ì	co.	. 0	90.	O	:	1.52		2.00
wimbledon ((((i) (i) (i) (i) (i) (i) (i) (i) (i)	N.	.02	.01	.05	.01		.05	•	.12	.10	.11	.03	:	.03	.10	.03	.23	.37	80.	.03	.01	:	•	. 0	90.	. i	en.	20.	.01	1.51		5.16
Wimbledon (anwoUədT)	IX.	.03	.03	90.	.02	:	0.5	.01	.18	.12	.10	•04	:	•03	čI.	.03	.28	•39	.10	.03	:	:	:	. 0	90.	• (	80.	80.	.01	1.83		5.63
Wimbledon (Sew.Wks.)	K	:	.01	.05	:	:	:	:	.13	20.	80.	.02	.01	:	.12	.01	.24	.27	.10	·0 <sup>‡</sup>	:	:	:	• 1	cn.	. 0	90.	90.	:	1.32		5.17
Morden	I.	.03		.01	:	**	.03	.03	.55	.07	.07	.05	•	:	.20	.03	.27	.46	.15	.02	.01		10.	0.0	35	TO.	20.	80.	.01	1.89	1	29.6
Beddington Corner	IN.	.04	.01	.05	:	:	:	•,	525	80.	80.	.03	:	:	.17	.02	.25	.45	80.	:	•	:	:	• [	70.	• 6	90.	90.	:	1.65	1	5.33
South Morwood	IN.	.02	.08	.05	.01	• (	.0.	. • ;	91.	=======================================	90.	.05	:	•04	.24	.03	08.	.45	.15	.03	:	•	:	. 0	en.	• 0	20.	co.	.01	1.97	1	5.44
Anerley	IN.	.03	.05	.05	.01	• (	-05		.16	80.	.10	80.	:	.03	.21	.03	.28	•43	.13	•04	:	:	:	• 0	₹0.	• 6	co.	₹O.	:	1.86	2	62.6
Вескепрат	N.	.02	.05	90.	.03	:	.05	:	:15	.11	-11	·04	:	.04	.33	20.	.27	.45	.15	.04	•	. 1	70.	• 5	cn.	• 0	on.	cn.	:	2.10	0	25.0
Common Common	IN.	:	.05	•04	:	:	:	• ?	97.	41.	.17	•04	:	20.	.40	.10	.29	.47	.16	.03	•	:	:	.0.	70	.00	200	₹O.	:	2.30	-	12.0
Bromley	IN.	.03	.05	90.	.05	• 0	£0.	• •	97.	01.	.10	•03	:	.03	.37	90.	.30	.49	.16	÷0.	:	• 6	70.	. 10	en.		5 9	#n.	- -	2.21	,	21.0
Bickley	IN.	.04	.03	÷0.	.03	• 0	70.	• 7	77.	60.	<u>G</u> 1.	-02	:	·04	.33	80.	.30	.53	.18	.0 <u>.</u>	•	• 0	70.	10.	±0.	30.	90.	70.	:	2.18	00.0	22.0
Chislehurst	IN.	.01	:	₹0·	.01	. 0	70.	• (	71.	I.	.15	.03	:	.03	.48	60.	.28	.47	.18	.05		• 7	10.		00.	2:	000	en.	.01	2.23	010	0.12

† The totals from January 1st.

\* The figures in this row give the totals for the month.

1.70 5.06

Day of Mo.

Southwark Park	.01		.04		.01	:10	.12	90.		: :	60.	.03	97.	00.	.04	:	:	:	90.	90.	:	:	1.33	4.73
Deptiord	. :	0.10	.03	: :	.03	.13	60.	010	7	.05	.17	.03	47.	. c	•04	:	•	•	.05	.0.	.01	.01	1.56	5.05
dэiwnээлĐ	.01	•04	÷0.		.03	:1:	.10	.10		.03	.19	÷0.	07.	2 .	90.	:	:5	70	90.	.07	.02	.01	1.81	5.53
Telegraph Hill	·03	. 0	90.	: :	.04	:13	.10	.11		.04	·14	÷0.	07.	20.0	90.	:	:	:	.08	:08	ŧ0.	:	1.77	5.48
Cambe'well (Leytonsq.)	.01	.02	e0.	: :	.01	.10	80.		10	.01	60.	.05	77.	120	.03	:	.0.	10	.05	.05	.03		1.21	3.91
Cambe'well (Town Ha.)	iN:	:	•	: :	•	.10	01.	90.	1 1	.03	20.	.05	) T.	60.	.03	•	:	•	.05	90.	.05	:	66.	3.49
Cambe'well (TheGreen)	.01	•00	TO	: :	.01	10.	.10	.1.4 .0.		.01	90.	.05	02.	121	.03	:	.0.	10	.05	90.	.02	.01	1.25	3.89
Battersea.)	.01	0.5	က်.	: :	.01	60.	15	0.09		: :	ij	0.5	ют.	.11	:	:	:	•	.05	90.	.03	:	1.28	4.35
Battersea Park	.03	60.	70.	: :	.03	.12	•14	90.		0.03	15	.0 <del>4</del>	77.	76.	•04	:	60.	60.	20.	90.	•03	:	1.73	5.33
Clapham Park	.03	.01	77.	: :	:	.15	-14	60.	•	: :	.19	• 1	).T.	75.	.05	:	:	60.	20.	.10	.05	.01	1.72	5.47
Rrixton	.01	•04	cn.	: :	.03	.14	60.	0.0		.03	.14	.0°	22.5	000	.05	:	: 5	10.	.07	.0.	ŧ0.	:	1.63	5.33
Brockwell	.01	0.05	70.	: :	.01	133	.12	80.	3	.01	.15	.05		20.	÷0.	:		10.	.05	:0:	÷0.		1.83	5.88
East Dulwich	in.	.04	-05	: :	.03	60.	80.	.05	10	.03	.10	.01	.24	72.	.05	:		10.	•0.	.0.	0.0	:	1.29	4.14
Nunhead	i.	.02	0.05	TO.	.02	:10	20.	.05	70.	.03	.11	.03	.21	25.	.02	:	:	:	.04	.06	.03	:	1.31	4.54
Eltham	.03	.02	0.00	70.	.02		.10	•03	:	.05	.21	.13	.25	24.	.05	:	:		.03		.01	.01	1.73	5.33
Greenhithe	.03		.03	: :	.01	: 7	.02	.05	#O	: :	•04	.05	7	.51 .06	0.	:	:	:	: :	:0:	H .		1.15	3.27
Dartford	IN.	.04	40.	60.	:	.16	90.	.12	90.	: :	.16	80.	.30	44.	÷0.	:	:	:	.05	.06		:	1.83	5.36
-SaimliW not	.NI	0.03	0.04	10.	: :	.17	60.	.13		.05	.12	.10	.24 42.	946	.03	:	:	:	.03	.0	0.00	:	1.77	5.20
Guobis	IN.	.03	04	10.	.03		90.	•14	en.	÷0.	.25	80.	.27	545	.05	:	:	:	.04	:00	0.0	.01	2.06	5.73
Forest Hill (Cemetery)	in.	90.	:	: :	.03	0	80.	90.	TO.	.03	.15	.01	.22	3 5	• 0.	:	:	:	::	. ć	.03		1.29	3.91
Forest Hill (Hon.O.rd.)	IN.	.03	•04	:	·0.	. 6	60.	11.	50.	.03	.15	.02	-27	. 35	.05	:	:	• •	.05	.06	90.	:	1.64	5.25
HiH teerest (br.mtrad)																			90.				1.71	5.18
U. Morwood (Dul. W.Pk.)	IN.	20.	20.	:	.03	• 10	.10	.10	90.	.05	.17	.03	.27	.46	. To	:	. (	70.	.05	.0.	0.00	:	1.98	5.53
West Norwood	IN.	60.	.05	:	.03	1.	.10	010	20.	.03	14	.03	.27	86.	eT.	:	• !	.03	0.00	. 0	000	.01	1.81	5.44
	,																							

Packet   P																																		
Aphippoper   Aph		IN.	0.5	0.5	:	• 6	70.	;	:14	:	.25	.15	60.	.03	60.	.03	:	• (	.10	.03	80.	.03	.03	cn.	90.	60.	.01	:	:	:	:	:	1.31	
Aphinger	Kenley Kenley		.05	:	:	• • •	70.	:	.13	:	.38	.16	60.	80.	•04	.03	:	. (	ç.	<u>c</u> 0.	60.	÷0.	• (	20.	.07	60.	.05	:	:	:	:	:	1.48	9.38
Abringer	Kenley Hazelea)	I KI	•04	•	:		TO.	:	60.	/•	.28	77	.12	.05	.05	.02	.01	. 0	90.	<u>c</u> 0.	80.	.03	0.	#0.	60.	99	.01	:	:		:	:	1.26	8.73
Abbinger Sign of the Color)    More Handle Sign of the Color)    More Handle Sign of the Color)    More Handle Sign of the Color Sign of t		IN.	90.	•	:	• 6	20.	:	::	:	•36	.19	•14	80.	90.	.03	-03	• (	60.	÷0.	.10	.03	• 1	00.	, ,	-14 -	•04	:	:	:	:	:	1.63	10.95
Abbinger 1, 18   19   19   19   19   19   19   19	Chelsham	IN.												· E ·	on.	ФV	X.	IHJ	ιN	ON	1												1.40	9.12
Abingery  Abinge	Sevenoaks	IN.	.03	:	:	: 5	10.	:	·10	:	•39	90.	60.	90.	.07	80.	.01	• 7	T.	Ξ.	.14	10.		# n.	).T.	TT.	<u>6</u> 0.	:	:	:	:	:	1.66	9.14
Abingery  Abinge	Chevening Tark	IN.	90	†	:	: 5	TO	:	.17	:	.35	.10	-11	.12	-07	:	.03	. (		91.	.01	÷0.	• 0	77	eT.	223	-0.	:	:	:	:	:	1.82	10.42
Abinger 7 (Horstham) 1.12 (1.0 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1.1		E S	.01	:	:	:	:	:	:00	:	.23	.04	.03	90.	•04	.01	.01	• C	01.	.03	010	70.		. O.S	90.	71.	0.0	:	:	:	*	:	66.	
Abinger   Abin		IN.	e 0.	:	:	:	:	:	. <u>1</u> .	:	.30	.08	20.	80.	90.	•04	•04	• (	71.	÷0.	.12	70.		70.	80.	4T.	.03	:	:	:	:	:	1.42	10.14
Abimger   Abim	mesterham (nvoT)	IN.	<u>c</u> 0.	:	:,	;	:	:	.13	·05	.40	20.	.10	.13	20.	20.	:	• (	Σ.	01.	.15	70.	• • •	en.	Ι.	Ţ	₹0.	:	:	:	:	:	1.87	
Abinger   Abin	Westerham (Hill Est.)		÷0.	:	:	: 5	TO	:	.15	:	.40	.10	•18	60.	90.	80.	-03	. !	).T.	OT.	7.17	£0.	. 7	60.	60.	).T.	÷0.	:	:	:	:	•	1.89	
Abinger   Abin	msdrətsD	IN.	c 0.	:	:	:0	70	:	: :	:	.36	.17	.13	.10	.12	.03	.12	1 •	70.	.03	01.	.03	. ?	# C	77.	60.	60.	.03	•	:	:	•	1.70	
Abinger   Abin	nobladO	IN.	90.	:	:	60.	70	:	:::	:	.36	.16	01.	.10	80.	•04	.01	• 0	20.	<u>.</u>	.10	104	• 0	δ <u>η</u> .	Ξ;	TT.	.05	:	:	•	•	:	1.66	10.20
Abinger To	Chipstead	IN.	40.	10.	•	00.	70.	•	.10	:	.35	.13	$\cdot 05$	,16	90.	.01	:01	• 0	90.	90.	010	.03	• 6	200	) )	200		:	:	:	:	:	1.43	
Abinger To	Merstham	IN.	÷0.	:	:	•	:	:	.19	:	.41	.13	80.	.11	90.	.03	.02	• I	0	.03	010	.03	: 3	#O.	, ,	•14 •	.05	:	:		:	:	1.60	10.10
Abinger Tile Rectory)  Abinger Tile Rectory  Abinger Tile Rectory)  Abinger Tile Rectory  Abinger Tile Rectory  Abinger Tile Rectory  Abinger Tile Tile Tile Tile Tile Tile Tile Tile	Upper Gatton	IN.		:	:	:00	70	:	.50	:	.39	.18	.12	.11	.05	•04	.01	• t	70.	90.	.10			200	01.	01.	÷0.	:	:	:	:	:	1.73	
$ \begin{array}{c} \text{Tabginger} \\ \text{High-array} \\ \text{In M-higher} \\ \text$	HeigateHill	IN.	÷0.	:	:		TO	:	.16	:	.41	.12	.10	.15	90.	.03	.03	1 .	20.	90.	.12	70.		# O.	07.	01.	90.	:	:	:	:	:	1.66	
Tabing trace of the first serious of the first seri	Buckland	IN.	.03	:	:	:5	TO	•	.12	:	.37	.11	.17	.15	90.	-05	.01	• 0	₹0.	<u>c</u> 0.	.10	0.7	10.	en.	200	01.	•04	:	:	:	:	e c	1.52	99.6
Tabringer (The Hall)	South Mutfield	-			•	:0:	TO		.12		.40	60.	•16	.13	90.	.02	:	• ì	co.	90.	60.	10.	• 6	70.	07.	eT.	.03		:	:		:	1.51	9.03
Tabinger (The Abinger (The Cotory))	Vutfield (newgauge)	IN.	903	.02	TO.	: 5	TO.	:	.16	:	.40	.05	•13	.12	.05	.02	.01	1 •		÷0.	.10	70.	: 3	#O.	07.	4T.	90.	:	:	:	:	:	1.57	9.92
TagardA N I I I I I I I I I I I I I I I I I I	Nutfield (old gauge)	IN.	.03	.02	TO.	:5	10.	:	.14	:	.43	90.	.17	.12	.05	.03	.03	. 0	) n	90.	80.	20.	:3	#O.	07.	-14 -	90.	:	:	:	:	:	1.66	8.97
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Redhill (Linkfd.la.)	-		70.	:	:00	20.	:	:18	:	.42	-14	.16	•14	•08	₹0.	•03	• 0	60.	20.	.15	co.		) i	77.	71.	.10	:	:	:		:	2.06	
$\frac{\operatorname{ragindA}_{\text{locator}}}{(\operatorname{Trotos} B)_{\text{locator}}} \overset{\text{right}}{:} \vdots $	Dorking (Denbies)	IN.	•04 •	:	•	90.	9	:	.15	:	.29	.17	.19	.15	90.	•04	.03	• (	89	<u>c</u> 0.	.13	ç0.	• 0	200	60.	01.	·03	:	:	:	:	:	1.75	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$				:	:	. 5	# 0	:	.10	:	.36	20.	60.	.12	.20	20.	.04	• 0	50.	70.	.15	•04	• 0	90.	GT.	07.	•04	:	:	:	:	:	1.86	9.70
quadmoH       1         7       1         6       2         6       2         6       3         7       4         6       3         6       3         7       4         6       3         7       4         6       3         7       4         6       3         7       4         7       4         8       4         9       4	Abinger (Rectory)	IN.	717	:	:		en.	:	.08	:	•34	.16	.13	.13	90.	.03	.02	. (	90.	÷0.	91.	.03	. 0	90.	01.	80.	.05	:	:	:	:	:	1.68	10.34
	St. Mary	1 300	7.0.	₹O.	:	.0.	eo.	:	:10	:	.34	.19	•14	•19	90.	•04	-02	* E	70.	90.	.16	÷0.	1 .	70.	60.	20.	.03	:	:	*	:	:	1.81	69.01

Day of Mo.

Rainfall

Daily

March, 1906.

																							_						
Streatham	IN.	:	:	:	:	:	60.	• 6	90.	.02	.03	90.	:	:	.06	.05	80.	.02	:	.19	.05	90.	:	:	:	:	•	66.	5.65
Wandswth. Common	IN:	:	:	• 5	10.	:	.13	.34	.0.	.04	.05	.03	:	:	90.	.05	60.	:	60.	900	.03	:	:	:	:	:	:	86.	6.27
Putney Heath	.02	:	:		:	:	.12	.84	90.	.05	•03	.05	.01	•	.07	ij	.11	•03		90.	.05	•04	:	:	:	•	:	1.50	6.31
Мем	.03	:	:		70.	:	20.	• 00	90.	20.	.03	90.	:	:	.0.	.13	.12	·0 <del>1</del>	:0:	0.00	.05	90.	:	:	:	:	:	1.23	6.24
Bichmond	.01	:	:	:	•	:	90.	.89	0.03	•04	•05	•04	:	:	.05	11.	.11	.03	.06	90.	.04	.03	:	:	:	:	:	1.03	5.50
Kingston (CountyH.)	.05	:	:	. 00	20.	:	.10	• 00	60.	20.	.05	·04	:	:	.0.	.11	.10	.03	•	10	60.	.05	:	:	:	:	:	1.26	09.9
Kingston (Sew.Wks.)	.01	.01	:	:	:	:	60.	• 00	0.00	80.	.03	.03	:	:	90.	01.	.10	.03	0.00	00.	.07	.03	:		:	:	:	1.15	29.9
notidans	.03	:	:	: 5	TO.	:	60.	.00	90.	80.	•04	.03	.01	:	.03	60.	.10	.02	90.	5.0	20.	.04	:	:	:	:	:	1.10	6.58
West	.02	:	:	:	:	:	.08	: 65	.05	60.	.03	.03	:	•	.03	.02	80.	.02	. 70	0.00	80.	.04	:	:	:	:	•	86.	60.9
Esher		:	:	:	:	:	.08	.66	.05	-0.	90.	.03	:	:	÷0.	•04	80.	:	.04	÷0.	90.	.03	:	*	:	:	:	06.	29.67
Worcester Park	.05	:	:	• • •	70.	:	.10	66.	90.	20.	90.	:03	:	:	.05	.10	.08	.02	.;	.0.	20.	-05	:	:	:		:	1.08	6.18
Malden	.01	:	:	:	:	:	: :	.30	•0•	.05	.02	.0.3	:	:	.0.	.11	60.	.01	.0	0.00	.05	.03	:	:	:	:	:	.85	5.22
Raynes Park	ι». •02	:	;	: [	TO.	:	.0.	• 00	.07	.05	•04	·0+	:	:	:0	01.	11.	-05		40.	80.	.03	•	:	:	•	:	1.13	6.13
(flimbaiW)		:	· ;	:	:	:	.13	.33	.05	.16	.03	-04	.01	:	.10	.12	.10	:	.0.	5	.10	.05		:	.01	:		1.32	6.48
Wimbledon (TheDowns)	·03	:	:	: 8	70.	:	.10	• ci	.10	80.	•04	90.	·01	:	:0	•14	.12	•04	.06	90.	60.	•04	:	:	•	:	:	1.39	7.02
Wimbledon (Sew.Wks.)	.01	:	:	:	:	•	80.		90.	.03	.02	·0 <sup>‡</sup>	:	:	.07	.05	20.	.01	:00	2 . 2 .	•04	-03	:		:	:	:	88.	6.05
	·03	• (	70.	.00	20.	:	60.	• 60	60.	-07	90.	90.	.01	:	60.	90.	60.	.03	ο. Θ.	.07	.03	90.	.01	:	:	:	:	1.31	86.9
Beddington Corner	.02	:	:	:00	70.	•	80.	30	.05	.03	.05	.04	:	:	:08	•04	90.	:	60.	400	•04	•08	:	:	:	:	:	.95	6.28
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Brockwell Park	IN.	:			:	:	:	.12	:	.38	90.	.03	.05	•04	:	:	:	.05	·04	60.	.03	0.	•04	60·	60.	.03	:	:	:	:	:	1.14	7.02
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# NOTES.

#### MARCH, 1906.

THE month has been very changable, with, after the first week, a prevalence of cold northerly winds with occasional snow showers. It has also been unhealthy, influenza, measles, and whooping cough having been somewhat prevalent. winds have been prejudicial to the gardens, and there are fears that the fruit-blossoms will suffer, though as yet it is somewhat too early to say. The snow was two inches deep on the 23rd at Leatherhead, and about the same depth at Morden on the 25th. The observer at Sanderstead mentions that there was a vellow darkness before the snow showers on the 24th and 25th. almond blossomed on the 3rd at Beddington, the 4th at Kew and Wallington, and the 7th at Epsom. The Cydonia japonica flowered at Kew on the 2nd, and the laurustinus at Wallington on the 13th. At Epsom the peach blossomed on the 3rd, the nectarine on the 20th, and the apricot on the 21st. The sulphur butterfly was seen at Abinger and Epsom on the 4th, and at Woodcote on the 11th; and a brown one was seen at Abinger on the 7th. Solar haloes were seen at Greenwich on the 10th and 14th, at Epsom on the 10th and 20th, and at Upper Gatton on the 10th; and a lunar one at the above three places on the Hail fell at Greenwich on the 19th and 24th. The rainfall is about half an inch below the March average. The mean temperature of the month is about the average, and was at Croydon (Duppas House) 42°·4, at Worcester Park 42°·2, at Wallington 42°0, at Epsom 41°6, at Chipstead 40°3, and at Warlingham 40°.1. At Wallington, on the 30th, the white frost on the grass was arranged in lines, as if swept by a broom. There were recorded at Wallington 97.4 hours of sunlight, which is 18 hours or four per cent. below the March average of the twenty years 1886-1905.

> F. CAMPBELL-BAYARD, F.R.Met.Soc., Hon. Sec.

## NOTES.

### APRIL, 1906.

THE month has been cold and very dry, with a great prevalence of northerly winds. There has been an absolute drought at most places throughout the district of twenty-two days-that is, from March 27th to April 17th, both inclusive. Frosts have been frequent. It has also been unhealthy, colds, whoopingcough, measles, diphtheria, and scarlet fever being somewhat in excess. There was a thunderstorm on the 22nd, and snow with remarkably large flakes fell between 8 and 9 a.m. on the 24th, and there was hail also on the 29th and 30th. Solar baloes were observed at Greenwich on the 5th, 11th, 23rd, 24th, and 26th, at Epsom on the 5th, 18th, 23rd, 26th, and 29th, and at Upper Gatton on the 5th; and a lunar one was seen at Greenwich and Epsom on the 5th. There was a light smoke fog at Sanderstead on the morning of the 8th, and great darkness at Wallington between 6 and 6.30 p.m. on the 23rd. Great damage has been done to the fruit-blossom by the frosts and cold winds, but the apple and the strawberry, not being so forward, are safe. At Kew the plum blossomed on the 6th, the pear on the 10th, and the apple on the 20th. The wryneck was heard at Nutfield on the 5th; the cuckoo at Abinger on the 12th, at Upper Gatton on the 13th, at Nutfield on the 16th, at Warlingham on the 17th, at Addington on the 23rd, at Morden on the 26th, and at Epsom on the 29th. Swallows were seen at Morden on the 15th, at Abinger on the 17th, at Nutfield on the 19th, and at Epsom on the 29th. The small white butterfly was seen at Wallington on the 13th, and at Epsom on the 16th. The blackthorn flowered at Wallington on the 12th. The observer at Epsom mentions the appearance of a beautiful sky glow on the 18th between 6.50 and 7.5 p.m., and suggests that it might have been caused by dust in the atmosphere thrown up by the eruption of Vesuvius. The rainfall for the month is only about one-third of the average. The mean temperature is between one-half and a whole degree below the average, and was at Croydon (Duppas House) 46°.9, at Worcester Park 46°.3, at Chipstead 46°.2, at Wallington 46°.0, and at Epsom 45°.6. At Wallington the barometer reading at 9 a.m. on the 9th and 15th—reduced to 32° F. and sea-level— 30.591 in., is the highest April value in the record. There were recorded at Wallington 216.9 hours of sunlight, which is 59.3 hours or fifteen per cent. above the April average of the twenty years 1886-1905. This value is the highest April value except in 1892 and 1893.

> F. CAMPBELL-BAYARD, F.R.Met.Soc., Hon. Sec.

April, 1900.

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April, 1906.

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The totals from January 1st. The figures in this row give the totals for the month.

Daily Rainfall.

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#### MAY, 1906.

THE month has been a peculiar one, with very great variations of temperature. The rainfall was in some parts much below the average, and throughout the district vegetation is very back-The month has also been somewhat unhealthy, measles and scarlet fever being rather prevalent. Thunder was heard and lightning seen at most places in the district on the 8th, 13th, 16th, and 30th; and in the storm on the 8th two trees adjacent to each other were struck by lightning in Kew Gardens. There was very little rain on either of these days. The observer at Nutfield Priory mentions that there was a very fine rainbow on the 16th; and there was also hail on that day at Nutfield Priory, Epsom, Wallington, and Beddington. At Greenwich there were hoar frosts on the 1st and 18th, and parhelia on the 3rd and 7th. Solar haloes were seen at Greenwich on the 3rd. 5th, 13th, 19th, 23rd, 29th, 30th, and 31st; at Epsom on the 2nd, 3rd, 5th, 19th, 29th, and 30th; at Upper Gatton on the 5th, 23rd, and 30th; and at Wallington on the 3rd: whilst lunar ones were observed at Greenwich on the 3rd, 5th, and 8th: and at Epsom on the 5th. The observer at Hazelea, Kenley, mentions that there is no bloom on the chestnut trees in many places, that the iris was not blooming, and that there was very little lilac; and the observer at Sevenoaks says that the nightingales were very shy of singing. At Wallington a swift was seen on the 8th, and the cuckoo was heard on the 13th. With reference to the flowering of trees, at Wallington the purple lilac bloomed on the 10th, the white lilac on the 12th, the red may on the 13th, the white chestnut, white may, and laburnum on the 15th, and the red chestnut on the 20th. Epsom the dates were as follows: Purple lilac and white may on the 14th, red may and laburnum on the 16th, white lilac on the 17th, and white chestnut on the 19th. The rainfall is about half an inch below the average. The mean temperature is very variable, being between the average and one degree above, and was at Croydon (Duppas House) 53°.9, at Wallington and Epsom 53°.0, at Chipstead 52°.7, and at Warlingham 51°.9. At Croydon evaporation was under the average, being less than in April. There were recorded at Wallington 166.9 hours of sunlight, which is 32 hours or six per cent. below the May average of the twenty years 1886-1905.

> F. CAMPBELL-BAYARD, F.R.Met.Soc., Hon. Sec.

#### JUNE, 1906.

THE month has been a treacherous one, with great changes. The days have been warm, but the nights cold, and in many places a frost was registered on the grass on the 5th, and it is possible that ground frosts occurred on other days during the first week. Thunderstorms took place on the 1st, 16th, 23rd, and 28th, and there was hail on the 1st and 16th in many places. Symptoms of earth tremor have been reported as having been felt at Redhill, Carshalton, and Croydon in the early morning of The great rainfall of the 28th and 29th is remarkable for its short duration. The whole of it fell in twelve hours, and at Wallington the amount—2.05 in. on the 28th, which all fell in nine and a half hours—is the highest June value in the record. The observer at Nutfield remarks, and his report is typical of the condition of the district, that there is a very poor hay crop, and potatoes are suffering from drought, that apples promise well, but that there are no pears or plums except on walls, that there are no gooseberries, but that black currants, raspberries, and strawberries are fair. Apart from colds, the month has, on the whole, been a fairly healthy one, though scarlet fever has been somewhat prevalent. Solar haloes were observed at Greenwich on the 1st, 7th, 16th, 18th, and 23rd, and at Upper Gatton on the 7th and 22nd; and a lunar halo was seen at Greenwich on the 7th. The rainfall of the month is about half an inch above the average. The mean temperature of the month is somewhat below the average, and was at Croydon (Duppas House) 59°.5, at Chipstead 59°0, at Worcester Park 58°8, at Epsom and Wallington 58°·1, and at Warlingham 57°·0. There were recorded at Wallington 236.7 hours of sunlight, which is 34.5 hours or seven per cent. above the June average of the twenty years 1886-1905. This amount has only been exceeded four times in June during that period.

> Francis Campbell-Bayard, F.R.Met.Soc., Hon. Sec.

Day of Mo.

June, 1906.

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MONTHLY GAUGE.

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The figures in this row give the totals for the month.

+ The totals from January 1st.

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13.97

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JULY, 1906.

THE month has been hot and very dry. The maximum shade temperature in the Stevenson's screen reached 80° and above on six days at Beddington and Epsom, and the minimum shade temperature in the screen was 60° and above on four days at Bromley; whilst the grass minimum went down to 38° on the 13th and 21st at Morden. The rainfall in most parts of the district was only about one quarter of the average, but in the Bromley district, including Orpington and Chelsfield, this amount was very largely exceeded, owing to the thunderstorm on the 27th, in which, at Chelsfield, two inches fell. In this storm at Woburn Road, Croydon, 0.53 in. fell between 7.45 and 8.15 p.m. There was also a slight thunderstorm on the 12th in many parts of the district. The harvest has begun in most parts of the The observer at Nutfield reports that "the potatoes in the fields have ripened prematurely, and will be to a great extent on light lands a failure." Solar haloes were seen at Greenwich on the 3rd, 4th, 10th, 13th, 19th, 25th, and 29th, and at Epsom on the 2nd, 13th, 14th, and 29th; whilst a lunar one was seen at Greenwich on the 1st, and at Epsom on the 4th. The observer at Abinger Hall reports "a remarkable afterglow of sunset on the 15th." The month, owing to the heat and dryness, has been somewhat unhealthy, there being an increase in the cases of diphtheria and scarlet fever, and, in some parts measles have also prevailed. The mean temperature is high, and varies from 0°.5 to 1°.5 above the average, and was at Croydon (Duppas House) 64°·3, at Chipstead 63°·9, at Epsom 63°·5, at Worcester Park 63°·4, at Wallington 63°·2, and at Warlingham 62°.4. There were recorded at Wallington 234.8 hours of sunlight, which is 19.2 hours or three per cent. above the July average of the twenty years 1886-1905.

> F. Campbell-Bayard, F.R.Met.Soc., Hon. Sec.

AUGUST, 1906.

THE month has been very dry and hot. It is the smallest August rainfall since 1899, and the mean temperature of the month is the greatest since that date. The shade temperature in a Stevenson screen on the 31st was exceedingly high, and was in many places in the district over 90°, viz. Greenwich 94°.3, Croydon (Duppas House) 94°·1, Beddington 92°·3, Sevenoaks and Epsom 92°0, and Wallington 90°8. Such high temperatures are very unusual so late in August. This high temperature also continued during the first few days of September, in the notes to which month further allusion will be made. Thunderstorms occurred in some portions of the district on the 2nd, 13th. and 17th, but, as is usual, the accompanying rainfall was very variable. At Croydon (Avondale Road) the rain on the 2nd-·58 in.—fell in less than one hour. Owing to the dry weather, the leaves of the trees commenced to fall earlier than usual, and in many places the turnips are dried up, and there is no grass. Wasps towards the end of the month became very numerous. Solar haloes were observed at Greenwich on seven days, at Epsom on the 9th and 13th, at Sanderstead on the 9th, at Upper Gatton and Beddington on the 10th, and at Betchworth on the 25th; and a lunar one was seen at Greenwich on the Fog occurred at Greenwich and Benhilton on the 30th, and at Upper Gatton on the 1st and 21st. The month, notwithstanding the heat, has been a healthy one, in all probability owing to its dryness. The rainfall of the month is about an inch The mean temperature of the month is below the average. about three and a half degrees above the average, and was at Croydon (Duppas House) 65°.4, at Chipstead and Wallington 65°·1, at Worcester Park 64°·7, and at Warlingham 63°·7. There were recorded at Wallington 230.6 hours of sunlight, which is 32.5 hours or seven per cent. above the August average of the twenty years 1886-1905.

> F. CAMPBELL-BAYARD, F.R.Met.Soc., Hon. Sec.

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Chevening Park	IN.	:::	:	:	:	:	:	:	.04	:	• 1	en.	.17	.24	.32	:	:	:	:	:	: 6:	10:		:	:	:	:	:	1.03	18.56
Knockholt (tower ga.)	IN.	::	:	:	:	:	:	:	.04	:	• 6	cn.	•	80.	.58	:	:	:	•	:	:00	60	:	:	:	:	:	:,	.58	13.21
Knockholt (field gan.)	IN.	::	:	•	:	:	:	:	90.	:		) )	90.	9.5	.31	:	:	:	:	:	::	21.		:	:	:	:	:	02.	16.83
Mesterham (mwoT)	IN.	::	:	:	:	:	:	:	::	:	• 0	200	.13	13	.30	:	:	:	:	:	. 6.	# T		:	:	:		:	88.	17.00
Westerbam (Hill Est.)	IN.	::	:	:	:	:	:	:	:0:	:	1.	ò ē	60.	:	.15	:	:	:	:	:	31.	07.	: :		:	:	:	:	09.	17.43
Caterbam	IN.	.12	:	• •	.03	:	:	:	.0.	:	• •	•46	.03	0.0	•04	:	:	:	:	:	. 6	# 77 ·		:	:	:	:	:	1.01	16.51
Chaldon	IN.	.40	:	:	:	:	:	:	: <u> </u>	:	. 1	, c	3 :	: :	:	:	:	:	:	:	00	67		:	:	:	:	:	1.39	16.46 1
Chipstead	IN.	.60	•	• 1	0.	:	:	:	.14	:	• 6	. I.3	5 :	0.5	.20	:	:	:	•	:	06.	70		:	:	:	:	:	1.43	16.81
Merstham	IN.	.50	:	:	:	:	:	:	.03	:	:5	4.	3 :	E.	.32		•	:	:	:	: 6	17	: :	•	:	:	:	:	1.32	16.21 1
Upper Gatton	IN.	.47	:	• 0	.01	:	:	:	÷0.	:	* k	cT.	3 :	.05	.27	:	:	:	:	:	• à	07	: :	:	•		:	:	1.31	17.39 1
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+ The totals from January 1st.

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Croydon (Avond rd.)	IN.	. 23	:	:	:	:	:	:	.03	:	66.	5	:	90.	.20	:	:	:	:	:	.23	:	:	:	:	:	:	1.22		19.44
Oroydon (Park Hill)	IN.			:	:	:	:	:	.03	:	• 0	07	. 0	9 6	.20	:	:	:	:	:	.19	:	:	:	:	:	:	1.00		13.24
Croydon (Wob.rd.)	N.	.73	:	:	:	:	:	:	:0:	:		7		300	.25	.01	:	•	:	:	.20	:	:	•	:	:	:	1.27		13.651
Croydon (Dup. H.)	IN.	.71	:	:	:		:	:	.03	:		77	: 20	9.00	.50	:	:	:	:	:	.21	:	:	:	:	:	:	1.26		14.21
Croydon (Wn.W.rd.)	IN.	.72	:	•	•	:	:	:	.01	:	• 5	77		÷ 6	.20	:	:	:	:	:	.24	:	:	:	:	:	:	1.97	4.40	4.40
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(Sew.Wks.)		.17	:	:	:	•	:	:	.03	:	. 0	20.	.0.	2 4	13	:	•	:	:	:	.22	:	:	:	:	:	:		00	11.88 11
(Waterwk.)												·N:	TE	ots.	31	ene	7Đ							_	-					=
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Wandswth.	IN.	.40	:	:	:	:	:	:	.01	:		.03	.10	.03	91.		:	:	:	.25	:	:	:	:	:	:	:	1.00	12.70
Putney Heath	IN.	.43	:	:	.02	:	:	:	:0:	:	:		.14	.03	77.	:	:	:	:	.22	:	:	:	:	:	:	:	86.	13.18
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Kingston (Sew.Wks.)		.30	:	:	:	:	:	:	.07	:	:0	9.00	-03	.05	.49	:	:	:	:	.22	:	:	:	:	:	:	:	1.21	13.24
notidans	IN.	.37	:	:	:	:	:	:	:05	:	:0		90.	.03	01.	:	·01	:	:	.19	:	:	•	:	:	:	:	62.	1.79
West	E.	.58	:	:	:	:	• 5	70.	.0.	:	90.	3:	.13	.03	Σ.	:	:	:	:	.20	:	:	:	:	:	:	:	.03	11.40
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Worcester Park		.30	:	:	:	:	:	:	.03	:	:5	0.0	.11	0.	GT.	:	:	:	:	.21	:	:	:	:	:	:	:	92.	11.71
New	ż	.35	:	:	:	:	:	:	::	:	:5		•05	• 5	.31	:	:	:	:	.17	:	:	:	:	:	:	•	06.	10.40
Raynes Park	بزر	.27	:	:	:	:	:	:	.03	:	.6	0.5	11	40:	.4.	:	:	:	:	.19	•	:	:	:	:	:	:	1.14	12.08
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Wimbledon (Sew.Wks.)		.29	:	:	:	• 5	TO.	:	.03	.01	:0	:	.07	0.10	2	:	:	:	:	.19	:	:	:	:	:	:	:	.71	11.49
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Anerley South Norwood	I.	.63 .64	:	•,	:	:	:	:	.0.	:	.12			.01 .02		:	:	:	:	.22	:	:	:	:	:	:	:	1.26	
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Bromley Bromley	IN. IN. IN. IN. IN. IN.	.14 .05 .49 .63	:			:	:	:	.04 .06 .05	:	.68 .58 .48 .12		70. 60. 65. 65. 67.	03 .06 .01	01. C1. Z1. \$1. \$1	:				.17 .17 .18 .22	:	:	:	:	:	:	•	1.10 1.43 1	68 12.94
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Deptford	IN.	.75	:	:	:	•		•	.03	•	06.	1	.05	• 1	.133		•	•	:	•	.24	•	:	:	:	:	:	•	1.39	12.60
Стеептісһ	IN:	.79	:	•	:	:	:	:	.01	:	06.	1	.04	O.	80.	:	:	:	:	:	.26	:		:	:	•	:	•	1.39	13.45
Telegraph Hill	IN.	• 44		•	•	:	:	:	.05		: 00	1	.08	.03	.19	:	:		:	:	.56	:		•	:	:	:	:	1.23	13.04
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Cambe'well (TheGreen)	IN.	.15	:	:	:	:	:	:	.03			)	.12	• (	.I.	:	:	:	:	:	.53		•	:	*	•	:		29.	9.46
Battersea (Waterwk.)	IN.	.36	:	:	:	:	:	:	: :	:	.03	)	.07	• 6	90.	:	:	•	:	:	.55	:	•			:	:	:	-74	10.48
Pattersea Park	IN.	.36	:	•	:	:	:	•	: :	:	.07		:1:	* Î	-0.2	:	:	:	:	:	.27	:	:	:	:	:	:	:	06:	12.88 1
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East Dulwich	IN.	.50	:	:	:	:	:	:	.03	:	:0:	-	.10	:	.18	:	:	:	:	:	:19	•	:	:	•	:	:	:	.78	9.85 1
Nunhead	IN.	.31	:	:	:	•		.01	.03	•	06.	9	90.	.03	.52	:	•	:	•	•	.23	:	:	:	:	:	:		90.1	11.06
Eltham	IN.	:13	•	:	:	•	:	:	.03	:	• yč	5	:0:	• 1	.17	:	:	:	:	:	.25	•	:	•	:	:	:	:	1.12	12.04 1.
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Sideup-		.03		• (	.03	:	:	:	.05	:	.9.1	1	•04	.01	-22	.01	:	•	:	:	.50	:	:	:	:		:	:	62.	12.51 11
(Cemetery)	,	.38	*	:	:	:	:	:	.04	:		00		80.		:	:	:	:	:	.23	:	:	•	• 1	GI.	.01	:	1.44	9.91 12
(Hon.O.rd.)		.63	•	•	:	:	:	:	.0.	:	• -	1	.04	.05	.21	:	:	:	:	:	.27	:	:	:	:	:	:	:	.44 1	0.5
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figures in this row give the totals for the month.

The totals from January 1st

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Keston	IN.	:	•	.65	:	•		:	:	:		70.	7 00	300	.23	.19	.18	80.	.13	:	:	:	:	:	:	. •	:	:	:	2.10	17.59
Науев	IN.	:	:	.46	:	:	:	:	:	:	;	000	4 6	20.	.21	.17	.12	.03	.03	:	•	:	:	:	:	:	:	:	:	1.62	15.78
West Wickham	IN.	:	:	.54	:	•	:	:	:	:	:		4 00	80.	.24	.17	.10	.01	:	:		•	:	:	:	•	:	:	:	1.69	16.84
Addington (.t8.qmu9)	IN:		:	.49	:	:	•	•	:	:	• 6	TO:	H 60	.10	.22	.19	.11	.01	:	:	:	:	:	:	:	:	:	:	:	1.69	17.13
notgnibbA alliH	IN.	:	•	.47		•	:	:		:	• 6	10.	4 6.	.05	.22	.16	60.	.03	:		:	•		10.	70.	10.	. (	.01	.01	1.60	16.44
Oroydon (Avond rd.)	IN.	:	:	.44	:	:	:	:	:	:		70.	4 6	90.	.18	.14	80.	.03	.05	.01	:	:	:	:	:	:	* 7	.01	:	1.54	16.98
Oroydon (Park Hill)	ï.	:	•	.56	:	•	:	:		:	:		.03	.03	$\cdot 19$	.11	20.	.01	:	:	:	:	:	:	:			:	•	1.41	14.65
Croydon (Wob.rd.)		:	:	.52	:	•	:	:	:	:	• 6	TO:	5.00	÷0.	.18	.11	20.	.03	:	•	:		:	:	:	:	:	:	:	1.41	15.33
Croydon (Dup. H.)	IN.	•	•	09.	:		:	•		:	• 7	TO.	200.	÷0.	.19	.12	80.	•04	:	:	:	:	:	:	:	•	:		.01	1.57	15.78
Croydon (Wn.N.rd.)	Ë	:	:	.67	•	:	:	•	:	•	:	66	ς, c.	9.0	61.	.12	80.	.04	:	:	*	:	:	:	:	:	:	•	:	1.66	16.06
Croydon (Brim. Bn.)	N.	:	:	.54	•		•	:	:	:	:	• 1	.03	0.00	.18	.10	20.	·0 <del>4</del>	:		0	:	:	:	:	:	.*		:	1.38	14.89
Bedding- ton	IN.	•	:	99.	:	:	:	:	:	:	:	.10	96.	90.	.17	.11	90.	.05		:	:	:		:	:	:	:	*	•	1.46	15.25
aotgaillsW	IN.	:	:	.53	, •		•	:	:	:		• •	.20	.07	.16	.10	90.	•03	.02	:	:	:	:	:	;	*	. 1	.01	:	1.47	15.58
Carshalton	K.	:	:	99.	•	:		:		:	:	• 1	.21	.07	. i	80.	90.	90.	.02	.*	•	:	:	:	:	:	:	:	:	1.56	13.68
Benhilton	IN.		:	.60	:	:	•	0	:	•	:	• 1	# F G:	60.	.16	.08	:	.11	:	.03	:	:	:	:		:	•	:	:	1.52	12.88
Sutton (Sew.Wks.)	IN.	:	:	.68			:	:	:	:	:	• -	1.4.	.10	41.	90.	20.	90.	:	.04	*	• 0	70.	:	:	:	:	:		1.62	13.50
Sutton (Waterwk.)	IN.											*1	rei	OT	S	æ.	U.A.	9													
Banstead	IN.	:	•	.58	•	:	:	•	:	:	:	• 6	07.	H .		15	20.		.05	*	•	:	:	:	:	:	:	•	•	1.42	16.33
Epsom	E.	**	:	.49	:	:	:	:	:	:	. 1	.01	96.	06.	20.	20.	.05	.11	.01	.02	-0 7	ĪQ.	:		9 1	.01		.01		1.58	14.54
tłodsxO	IN.		:	.99	:	•	:	:	:	:	• 1	.01	07.	17	.07	.05	.03	.02	.01	.03	:	:	:	:		.01	:	.01	:	1.55	14.94
D'Abernon Сhase		•	:	09.	:	:	:	:	:	:	:	• •	07.	1 4 .	.07	.05	.05	.02	:	:	.01	90.	•	:	0	•	:	:	:	1.44	
Leather- head	IN.	:	:	22.	:	•	:	:	:	:	• 1	10.	98.	11.	.05	90.	•04	90.	:	.05	•	:	:	:	:	:	•	:	:	1.74	18.65 16.00 16.52 15.02 16.13
Headley	IN.	:	:	.70	:	:	:	:	:	:	•	• • •	2 4 00	4	90.	80.	90.	60.	:	.03	:	:	:	:	:	:	:	:	:	1.79	16.52
Burgh Heath	IN.		:		:	•	:		:	:	:	• G	02.	4 60	20.	20.	90.	.08	:	:	:	:	:	:	:	:	:	:	•	1.75	16.00
Purley	١.	:	:	.52	:	:	:	:	:	:	• 1	.01	07.	دن	61.	.13	.12	-02	.01	.01	:	:	:	• 1	.01	:	:	;		1.76	18.65
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Streatham	E E	•		1.10		:	-:	:	:	:		• 5	0T.	.07	.21	.07	80.	.05	: :	:	•	:	:	:	:	:	:	:	2.11	13.68
Wandswth.		:	:	1.06	:	:	:	•	:	:	:	0.0	5 2 2	.34	.22	11.	90.	99	:0	:	:	:	:	:	:	:	:		2.42	15.12
Putney	H.		:	.65	:	:	:	:	:	:	:	0.05	.30	.13	.18	80.	90.	60.	90.	:	:	:	:	:	:	:	:	:	1.98	15.16
Жем	IN.	:	:	.87	:		:	:	:	:		10.	0 %	.01	61.	.03	÷0.	5.5	04	:	:	:	:	:	:	:	:	:	1.84	15.46
baomdəis	IN.	:	:	.78		:	:	:	:	:	:	0.00	.26	•03	.12	•04	90.	Ō.	.03	:	:	:	:	•	:	:	:	*	1.57	12.92 1
notegatik (.Htanuot)	IN.	:	:	1.30	:	:	:	:	:	:	:			.24	.13	.05	0.0	20.	.03	:	:	:	:	:	:	:	:	:	2.39	15.24 1
Kingston Sew.Wks.)	1	:	:	1.49	:	:		•	:	:	:		3 2 2	.35	.14	90.	90.	200	0.0	:	:	:	:	• (	.01	.02	•	:	2.62	16.21
Gurbiton	١.	:	:	.94	:	:	:	:	:	:	• 1	. 01	.30	.15	60.	.05	•04		0.0	:	• 1	10.		:	<b>:</b>	:	:	:	1.81	13.60 1
West	IN.	:	:	1.29	:	:	:	•	:	:	• 1		4 65	.10	.10	.05	.04		: :	*	:	:	:	:	:	•	:	:	2.14	13.54
Esher	-	:	:	92.	•	:	:	:	:	:	. • 0		3 1 1	.14	20.	.03	• 6	.03	: :	:	:	:	:	:	•	:	:	:	[.i]	12.12
Ратк	Z	:	:	:0:	:	:	:	:	:	:	:	.16		.14	.10	.05	.02	07.	.05 .05	:	:	:		:	:		:	:	2.00	3.71 15
Malden Worcester	ż		-;	.21	:	:	:	:	:	:	:	• 10		.50	90.	.05	90.	:	0.5	:	:	:	:	:	:	:	:	:	2.08	12.48 13
Park Wew		•,	:	00.	:	:	:	:	:	:	:	. 5	41	.13	.18	20.	90.		.03	:	•	:	:	:	:	:	:	:	2.10 2	14.18 12
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(IlimbaiW)	N. IN.	:	:	1.16	:	:	:	:	:	:	. 1	.01 .10 .0						1 OI.	•0•	:	• !	10.	:	:	:	:	:	:	2.51	15.89
(sawoUədT) nobəldmiW (llimbaiW)	N. IN.	:	:	1.13 1.16 1	:	:	:	:	:	:	a 1	.00 .01 .18 .01		.17	.50		0.5	01.	.01	:	• • • • • • • • • • • • • • • • • • • •	το	:	:	:	:	:	:	51	
(Sew.Wks.) Wimbledon (TheDowns) Wimbledon (Ilimbledon (Ilimbledon	IN. IN. IN.	•	:	1.30 1.13 1.16 1	•	:	:	:	•	:	# 1	.d .didi.	.46	.15 .17	.19 .20	.09	04 0.07	0T. 00.	_	:	• • • • • • • • • • • • • • • • • • • •	10.	•	:	•	•	•		35 2.51	13.84 15.89
mobeldmiW (Sew.Wks.) Wimbledon (Ilhel)owne (Mimbledon (IllimbniW)	IN. IN. IN.	•	:		• • • • • • • • • • • • • • • • • • • •	:	•	:	•	:	• 6	.d or. st. st. st.	.35 .44 .46	.15 .17	.20 .19 .20	00. 01. 00	0. 40. 90.	0T. 00.	.03 .01	:	• • • • • • • • • • • • • • • • • • • •	10.	:	:		•	•	•	2.35 2.51	15.17 13.84 15.89
Morden Morden Wimbledon Wimbledon Wimbledon (Thethowns)	IN. IN. IN. IN.	:	:		•	:	•	•	•	:	• 6	. 10. 60	35 35 44 46	.08 .10 .15 .17	.18 .20 .19 .20	60. 01. 20. 90.	20. 40. 90. 90.	0T: 90. 70. 90.	.03 .01		•	10	•	:	•	•	•		2.36 2.35 2.51	13.75 15.17 13.84 15.89
Morwood Beddington Morden Morden Wimbledon	IN. IN. IN. IN. IN. IN.	•	:	.90 1.30 1	•	:	•	:	•	:		10. 60 20.	.35 .35 .35 .46	.08 .10 .15 .17	21 .18 .20 .19 .20	60. 01. 70. 90. \$1.	20. 40. 90. 90.	01. 90. 10. 90. e0.	.03 .01	• • • • • • • • • • • • • • • • • • • •	· · · · · · · · · · · · · · · · · · ·	10.	•	:	•			•	1.89 2.36 2.35 2.51	15.17 13.84 15.89
South Morwood Beddington Corner Morden Wimbledon Wimbledon Wimbledon (The Morwin Wimbledon Wimbledon The Morwin Wimbledon Wimbledon	IN. IN. IN. IN. IN. IN.	:	:	92 90 1.30 1	•	: : : : : : : : : : : : : : : : : : : :	:	:	:	:	• 0	10. 60. 20. 20. 20.	.38 .35 .35 .44 .46	03 03 08 01 15 17	20 -21 -18 -20 -19 -20	90. 01. 00. 90. 11. 21.	70. \$0. 90. 90. 10.	01. 90. 10. 90. e0.	.03 .01	• •	· · · · · · · · · · · · · · · · · · ·	10.	•	•	•	•		•	03 1.98 1.89 2.36 2.35 2.51	45 14.97 15.22 13.75 15.17 13.84 15.89
Beckenham Anerley South Yorwood Beddington Corner Mimbledon Wimbledon Wimbledon Wimbledon Wimbledon Wimbledon	IN. IN. IN. IN. IN. IN. IN.	:	:	1.02 .92 .90 1.30 1	•	: : : : : : : : : : : : : : : : : : : :	: : : : : : : : : : : : : : : : : : : :	:	:	:		10. 60 20. 20. 10.	.25 ·35 ·35 ·35 ·44	03 03 03 08 10 15 17	23 .20 .21 .18 .20 .19 .20	90 01 00 01 00 00 00 00 00 00	70. 40. 90. 90. 70. 80.	0T. 90. 00. 00 TO		• •	· · · · · · · · · · · · · · · · · · ·	10.	•	•	•		•	•	1.77 2.03 1.98 1.89 2.36 2.35 2.51	45 14.97 15.22 13.75 15.17 13.84 15.89
South Norwood Beddington Morden Wimbledon Wimbledon Wimbledon Wimbledon Wimbledon Wimbledon Wimbledon Wimbledon	IN. IN. IN. IN. IN. IN. IN. IN.		:	1.02 .92 .90 1.30 1	:	: : : : : : : : : : : : : : : : : : : :	:	:	:	:		10. 60. 20. 20. 10. 20.	27 .25 .38 .35 .35 .35 .44	.04 .03 .03 .03 .08 .10 .15 .17	21 .23 .20 .21 .18 .20 .19 .20	90. 01. 70. 90. 41. 21. 21. 91.	70. 40. 90. 90. 10. 80. 11.	01: 00. 10. 80. co 10 : 60.		• •	· · · · · · · · · · · · · · · · · · ·	10.		:	•				77 2.03 1.98 1.89 2.36 2.35 2.51	45 14.97 15.22 13.75 15.17 13.84 15.89
Bromley Beckenham Beckenham Anerley South Corner Mimbledon Wimbledon Wimbledon Wimbledon Wimbledon Wimbledon	IN.		:	1 .49 .80 1.02 .92 .90 1.30 1	: : : : : : : : : : : : : : : : : : : :	: : : : : : : : : : : : : : : : : : : :	:	: : : : : : : : : : : : : : : : : : : :	:			10. 60 20. 20. 10. 20. 20. 10. 81. 81. 81.	24 .27 .25 .38 .35 .35 .44 .46	0.00 0.04 0.03 0.03 0.08 0.10 0.15 0.17	24 .21 .23 .20 .21 .18 .20 .19 .20	60. 01. 70. 60. 41. 21. 21. 61. 61.	70. \$0. 90. 90. 10. 11. 60. 60. 10. 60.	0T: 90. 70. 60. 50. 50. 50.	10. 60.	• •	TO. TO. ZO	TO		:					1.71 1.56 1.77 2.03 1.98 1.89 2.36 2.35 2.51	45 14.97 15.22 13.75 15.17 13.84 15.89
Bromley Gommon Beckenham Anerley South Corner Mimbledon Wimbledon	IN.		: : : : : : : : : : : : : : : : : : : :	771 .49 .80 1.02 .92 .90 1.30 1	:	: : : : : : : : : : : : : : : : : : : :	: : : : : : : : : : : : : : : : : : : :	:	:	:	10.	10. 60. 50. 20. 10. 20. 20. 10. 22.	31 .24 .27 .25 .38 .35 .35 .35 .44 .46	03 02 04 03 03 03 08 10 15 17	02. 24 .21 .23 .20 .21 .18 .20 .19 .20	90. 01. 70. 90. 41. 21. 21. 91. 02.	70. 40. 90. 90. 10. 80. 1T. 80. 80. 60. 60.	0T. 00. 70. co. 10 co. 20.	0. 0		TO. TO. ZO	10.				:			1.86 1.71 1.56 1.77 2.03 1.98 1.89 2.36 2.35 2.51	45 14.97 15.22 13.75 15.17 13.84 15.89
Bickley Bromley Common Beckenham Anerley South Yorwood Gorner Mimbledon Wimbledon Wimbledon Wimbledon Wimbledon Wimbledon Wimbledon Wimbledon Wimbledon Wimbledon	IN.			70 77 49 80 1.02 92 90 1.30	:	: : : : : : : : : : : : : : : : : : : :	: : : : : : : : : : : : : : : : : : : :	:	:		10.	0. 60. 20. 20. 10. 20. 10. 20. 20. 20. 20. 20. 20. 20. 20. 20. 2	26 31 24 27 25 38 35 35 35 44 46	02 03 00 04 00 00 00 00 00 00 00 00 00 00 00	02. 22 .26 .24 .21 .23 .20 .21 .18 .20 .19 .20	60. 01. 70. 60. 41. 21. 21. 91. 91. 02. 91.	70. 40. 90. 90. 80. 10. 80. 1T. 60. 60. 40.	01. 00. 10. 00. co. 10. co. 20. co. 10.	10. 60		TO. TO. ZO TO.	10.	• • • • • • • • • • • • • • • • • • • •			•			1.71 1.56 1.77 2.03 1.98 1.89 2.36 2.35 2.51	14.97 15.22 13.75 15.17 13.84 15.89

+ The totals from January 1st.

Southwark Park	IN.	:	•	.0	0	:	:	:	:	:	:		• 1	.17	.41	0.5	.12	.05	.03	:	:	:	:	:	:	:	:	:	:	:	•	1.58	12.25	
Deptford	IN:	:	:	.0.	5	:	:	:	:	•	:	• 0	70.	207	325	.19	.18	·13	90.	.01	:	.01	:	:	•	•	:	:	:	:	•	1.97	14.57	
Стеепwi <b>ch</b>	IN.	:	:	• 00	3	:	:	:	:	•	:	• 6	20.	207	450	61.	.17	ij	.07	.01	.01	.01	•	:	:	:	:	:	:	:	:	1.97	15.42	
Telegraph Hill	IN.	•	•	00.	000	:	:	:	:	:	:	:	• 6	07.		07.	.16	60.	.07	.05	:	:	:	:	:	:	:	:	:	:		2.00	15.04	
Cambe'well (Leytonsq.)			:	. 2.7.5	2	:	:	:	:	:	:	• 6	70.	₹T.	07.	10.	60.	.05	÷0.	.01	:	:	:	:	:	:	:	:	:	:	:	1.25	10.17	
Cambe'well (Town Ha.)	IN.	:	•	. 2	2	:	:	•		•	:	:	• †	oT.	.25	77.	.16	-02	.04	.01		:	•	:	:	:	•	:	:	:	:	1.68	10.90	
Cambe'well (TheGreen)	IN.	*	:	.7.	H	:	:	:	:	:	:		IO.	).T.	.21	Ŧ2.	.19	.07	÷0.	.03	:	:	:	:	:	:	:	:	:	:	:	1.69	11.15	
Battersea (Waterwk.)	IN.	:			2	:	:	:	:	•	:	:	• L	cT.	27.	.03	.50	-07	.03	90.	:	:	:		:	:	:	:	:	:	:	1.56	12.04	
Battersea Park	IN.		:	.7.9	1			•	•	:	:	• 0	20.	77.	48.	£0.	.21	-0.2	.05	.05		.03	:	:	:	:	:	:	:	:	•	1.73	14.61	
Clapham Park	IN.			1.07	701	:		:	:	•	:	:	• 6	07.	10.	·13	.22		$\cdot 16$	·0 <del>1</del>	:	:	•	•	:	:		:	:	:	:	2.33	16.04	
Brixton	IN.												• 0	EES	SVE	co	ď	10	э	H														
Brockwell Park			:	1.90	7 70	:	:	:	•		:	* 7	.0.	.21	·45	.21	.23	ī.	20.	.05	:	:	:	:	:	:	:	:	:		:	2.59	17.33	
East Dulwich		:	:		23	•	:	:		:	:	:	. 0	90.	.56	·14	.17	.08	•04	.03	:		:	:	:	:	:	:	•	:		1.76		and the same of th
Nunhead	IN.	•	:	.00	00	•	:		•	•	:	e 1	10.	el.	.58	·II	.20	.10	90.	.03	•	:	:	:	:	:	:	:	:	:		1.74	12.80 11.61	
Eltham	IN.	:	•	.776	2	•	:	:			:	. 0	70.	.18	.56	.07	.18	.50	.05	.03	:	:		•	:	:	:	•		*	:	1.74	13.78	
ədtidaəərD —	IN.	:	•	• £	00.	TO.	:	:		:	:	:		.14	.22	80.	.10	•04	80.	60.		.02	:	•	:	:	:	:	:	:	•	1.31	8.72	
brottrad	IN.		:	. 0 9	000	:	:	:		:	:	. (	70.	.25	000	.03	.03	.03	.13	·04	:	90.		÷0.	:	:	:	:	:	:	•	1.63	13.05	
-gnimliW not	IN.	:	•		70.	:	:	:	:	•	:	:	:	.21	.58	•04	.10	.05	.13	•04	·04	•03		.03		:	:	:	:	:	:	1.57	12.58	
gusbis	IN.	:	:	67	20.		:	:	:	:	:	. 1	-0.5	.24	.35	.05	.50	•14	.10	.13	.03	.03		·0 <del>4</del>	:	:	:	:		.01		1.93	14.44	
Forest Hill (Cemetery)		:	:		70.	:	:	:	:	:	:	• 1	.01	.13	.50	÷ E	-11	.08	-07	.01	•	:	:	•	:	:	:	:	:	:	•	1.36	11.27	
HiH teeroT (Lan.O.noH)	IN.	•	:	• 0	06.	:	:	:		:	:		-05	-19	.40	•10	.23	.12	80.	•03	:	:	:	:	:	:	:	:	:	•	:	2.13		
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U. Morwood Dul. W.Pk.)	IN.			• 6	76.	:	:	:	:	:	:	:	:	-24	.48	90.	.21	.13	80.	.05	:	:	:	.02	:	:	:	:	:	:	:	2.19	15.89	
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## SEPTEMBER, 1906.

THE month has been a most extraordinary one. high temperature on the first three days constitutes a record. Two very full reports have been received—the one from Mr. Baldwin Latham, and the other from Mr. Simpson Rostronwhich will be included in the annual report, as they are too long for insertion here. The month has been an unhealthy one, diphtheria, scarlet fever, and typhoid cases being somewhat numerous; whilst summer diarrhea has been very fatal to infant life. The showers in the middle of the month did a great deal of good, and stopped the fall of the leaves from the trees. At Abinger the potatoes are very good, and there is very little disease; and at Redhill the observer reports a nest of young martins against the house, and that the water-lilies are still in bloom, and that there were a few late red currants on the bushes. Lightning was seen at Greenwich on the 16th, at Kew on the 23rd, and at Epsom on the 15th. Solar halos were seen at Greenwich on the 4th, 13th, 14th, 29th, and 30th, at Epsom on the 4th, 14th, and 29th, at Nutfield on the 7th, at Upper Gatton on the 27th, at Purley on the 28th, and at Wallington on the 29th: whilst lunar ones were observed at Epsom on the 7th, 28th, and 29th, at Wallington and Greenwich on the 28th and 29th, at Upper Gatton on the 26th, at Purley on the 27th, at Nutfield and Sanderstead on the 28th, and at Beddington on the Ground frosts and fogs occurred at several places in the district during the last week. The rainfall is from a half to a quarter of an inch below the average. The mean temperature of the month is between one and two degrees above the average, and was at Croydon (Duppas House) 59°.8, at Epsom and Worcester Park 59°0, at Wallington 58°9, and at Chipstead and Warlingham 58°.3. There were recorded at Wallington 175.1 hours of sunlight, which is 15.4 hours or four per cent. above the September average of the twenty years 1886-1905.

> F. CAMPBELL-BAYARD, F.R.Met.Soc., Hon. Sec.

#### OCTOBER, 1906.

An exceedingly warm October—in fact, the warmest at Greenwich since 1861, and then back to 1831. A most interesting report has been received from Mr. Rostron, which must be reserved for the annual report. The month has also been a wet one, the excess varying from about 1.00 in. to about 0.25 in. The month, as might be expected, has been rather unhealthy. scarlet fever being prevalent. As instances of the unusual warmth, it may be mentioned that at Sevenoaks raspberries were picked on the 25th; at Abinger an odd butterfly was seen occasionally: whilst in most parts of the district roses, dahlias. begonias, nasturtiums, mignonette, Convolvulus major, and other tender plants were still in bloom on the 31st. Solar haloes were seen at Greenwich on twelve days, those on the 10th, 18th, and 21st having parhelia, which were also seen at Purley on the 29th. Solar haloes were also seen at Upper Gatton and Sanderstead on the 26th, and at Epsom on the 10th, 18th, 20th, 26th, and 29th. Lunar haloes were seen at Greenwich on the 24th, 25th, 26th, and 29th; at Epsom on the 1st, 8th, 26th, and 29th; at Sanderstead on the 26th; at Purley on the 27th, with paraselenæ: and at Nutfield on the 24th. Lightning was seen at Greenwich on the 9th, 10th, 21st, and 30th, and at Nutfield and Upper Gatton on the 9th and 10th; and a rainbow was observed at Beddington on the 9th, and at Epsom on the 10th. On the 11th laburnum flowered at Hackbridge, and a wasp was seen there on the 12th; and at Wallington a wasp was seen on the 22nd, and a ladybird on the 23rd. The mean temperature of the month is about 5° above the average, and was at Croydon (Duppas House) 54°.5, at Wallington 54°.1, at Worcester Park 53°.9, at Epsom 53°.7, at Chipstead 53°.0, and at Warlingham 52°·8. There were recorded at Wallington 122·1 hours of sunlight, which is 24.3 hours or seven per cent. above the October average 1886-1905, and has only been exceeded three times in such period.

> F. CAMPBELL-BAYARD, F.R.Met.Soc., Hon. Sec.

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\* The figures in this row give the totals for the month.

† The totals from January 1st.

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Daily Rainfall.

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+ The totals from January 1st.

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South Norwood	KI,	45	88.	:	:	:	:21	.20	.18	.01	: =	:	:	:	:80	.17	• 6	en.	.0.	:	:	.0.	:	.39	.48	.38	:	3.16	0
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Вескепрат	IN.	75.	.46	:0:	2	:	.16	.15	.22	.01	.12	:	:	:	90.	.12	.05	10.	: ē	:	:	:08	0.	.43	.65	.39	:	3.37	000
Bromley Common	.N.	000	no.	.03	)		.15	.21	.23	:	60.	:	:		:19	.16	0.0	20.	.05	:	:	:0.	:	.43	1.01	.50	.03	4.18	10.40
Bromley						:	.15	.19	.55	:	::	:	:	:	:::	.14	80.5	70.	.05	:	:	:08	:	<u>c</u> <sub>4</sub> .	.78	.41	•	3.72	10.70
Віскіеу	in.	0 1	ac.	: :			.15	.18	.50	:	.10	:	:	:	.13	.13	.07	:	.03	. †	:	.07	:	.50	98.	.03	:	3.96	00.00
	N.	-		: :	:	:	.13	•13	.24	:	: =	:	:	:	.20	.18	.07	:6	0.0	:	•	.0.	:	.53	06.	£2.	-	4.14	10.41 10.61 00.00 10.26 10.40
		- L	7	:0:		:	0.5	05	52	:	.60	:	: 1	.01	.31	11	0.0	10	0.0	•	:	:08	:	36	-40	08.	.05	4.70	. 41
Southfleet	KI 9							•																Ť.,	-			4	G

The or gives ( total total weight on

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Southwark Рагк	IN.	.40	.50	:	:	:	• 0	91.	08.	.14	:		•0.	:	:	:	• 0	90.	67.	10	50.	:0		:	:	:		4.00	9ç.	.56	•	2.86	15.11
Deptford	IN.	66.	:31	. (	10.	:	• 5	οŢ.	cz.	.24	:	. 5	co.	:	:	:	• 6	20.	ß.	200	10.	.03		:		₹O.	• 5	64.	.48	.37	.03	3.09	17.66
dэiwnээт Э	IN.	.37	.35	• 7	TO.	:	1 •	7.	77 7	61.	:	• 6	3	• 7	ŢŌ.	:	• 60	00.	† T	7 5	.01	.05	:	.01	: 6	.03	: 1	Te.	555	.40	.05	3.04	18.46
Telegraph Hill	IN.	.45	93	:	:	:	• 0	07	7 6	27.	:		0	:	:	:		00.	07.	# 6	20.	90.	:	:		co.		ne.	.49	.37	:	3.55	18.96
Cambe'wel (Leytonsq.)	IN.	.35	.51	:	:	:		# T	17.	χ.	:	. 60	000		:	:	: ?	# O F	eT.	9	:	.05		:	• 0	e0.	• 6	67.	. 33	.31	:	2.26	19.43
Cambe'wel (Town Ha.	IN.	.31	.58	:	:	:		ST.	77.	).T.	:		ŧ∩.		:	:	• h	co.	1.4	TO	:	.04	:	:	• 6	60.	::	14.	.40	:32	:	2.61	13.51
Cambe'wel (TheGreen	IN.	.35	.24	:	:	:	: 7	# 7	17.	TT.	.01	• 6	en.	:	:	:	• 0	90.	61.	00	:	.04	:	:	• 6	20.	* 3	02.	:13	:	:	1.89	13.01
Battersea (Waterwk.	IN.	30	523	•	:	:	66.	07	777	7.1.	:		ŦĎ.	:	•	:		30.	# T	10	:	.03		:	• 6	.03		40	.50	.37	.01	2.83	14.07
Battersea Park	IN.	.46	.56	:	:	:	00	0 10	77.	20 0	70.	30.	90	• (	10.	:	: -	1 9	0.0	0	:	.04		:	• 6	£0.	. 1	64.	99.	<b>*</b> †*.	:	3.41	19.00
Clapham Park	IN.	.55	·19	:	:	:		βŢ.	<del>+</del> 7.	7	:	90	00.	. 7	<b>T</b> O.	:	• •	01.	71.	20.5	10.	.04	:	•	: 3	.04	: 1	₽C.	.48	.57	.01	3.04	10.00
Reixton	IN.													Œ	ISV	œ.	) (I	ЭЕ	EC	н								-					•.
Батк Вгоскwеll	IN.	•54	•34	:	:	:	• • •	223	4.0	27.	:		90.	:	:	:	• 0	0 5	) T.	70	:	.04	:	:	• è	cn.	• I	19.	0ç.	67.	:	3.61	1000
East	IN.	.28	.13	:	:	:	. 7	-T-T-	27.	.17	:	• 6	70.	:	:	:	• 1	င္သင့	1.0	10.	:	.0.	) •	:	. (	70.	. 0	-33	.40	.41	:	2.43	3 4 0 4 6
Vunhead	IN.	.42	.56	:	:	:	• 6	15	22.	61.	.01	. 5	co.	:	:	:	: 0	40 -	cT.	• 7	T0.	:0		:	. 0	.03		.42	.49	.35	.01	2.83	7 1
Eltham	IN.	·45	•39	:	•	:	• -	TT.	91.	7.7.7	:	• 6	20.	:	:	:	: 3	40. 40.	01.	en.	:	.03		:	• 1	.02		.46	69.	67.	.03	3.31	00
Greenhithe	IN.	.50	Ţ.	.01	:	:	• 0	on.	• 0	68.	:	• 6	000	TO.	:	:	• •	OT.	40.	GO.	:	:0:		:		20.	.01	.52	.87	94.	.03	2.98	11 10
Dartford	IN.	.40	.47	:	:	:	• 0	000	70.	27	:	• 6	20.		:	:	• 6	77.	01.	90.	:	.03		:	. (	80.	. 1	645	1.40	.71	20.	4.49	1 1
-gaimliW not	IN.	.36	.53	:	:	:	* 0	90.	90	228	:	1 •	,0	:	:	:	• (	22.5	200	90	:	:0:		:	. 0	60.	.04	30	1.34	.73	90.	4.29	10.01
Guobis	IN.	.41	•54		.01	:	• 7	II.	E !	.27	.01	• •	TT.	:	:	:	• !	.T.	).T.	200	10.	.03		:	. (	80.	. (	.42	.93	.55	.02	4.04	1000
Forest Hill (Cemetery)	IN.	.42	.18		.01	:		91.	. 1 2	.19	:	• 1	,0.	:	:	:	• 1	90.	01.	90.	:	.03	.01	:	: :	.03	.01	.59	.35	.24	:	2.35	0000
fliH tasrofl (.br.O.noH)	vi	.48	.31	:	0.	:	• (	.T8	22	.18	.01	• 1	7.0.	:		.01	. 0	90.	87.	70.	•	.0.		.02	• 1	·04	:	£9.	.46	.38	.01	3.22	
fliH teeroT (Dartm.rd.)	12	.46	.31	:	:	:	• !	.17	.16	.22	:	. (	900	:	:	:	•	80.	.51		•04	:0	5 :	:	:	.05	:	.51	.22	09.	:	3.15	
U. Norwood (Dul.W.Pk.)	IN.	.48	86.	:	.03		. !	.50	.56	.19	.02		20.	:	.01	.02	:	60.	.50	:	.03	:0	H :		:	.05	:	.50	.46	.39	:	3.41	0
West Norwood	IX.	.47	.37	:	.01	:		.55	.24	•16	.01	. !	.07	:	.01	.01	:	80.	.18	70.	:		3		:	·04	:	.52	.37	.37	:	3.20	()
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\* The former in this row give the totals for the month.

+ The totals from January 1st.

Holmbury St. Mary

Day of Mo.

.06 .15 .31 .83

INOVEILIBER, 1900.

.16 .22 .54 .10 .10 .02 .02

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	Sander- stead	IN.	60	eë,	.67	0.		xa.	92	Ť :		•	•	:	:	.10	.26	.37	•16	.07	.46	•01	.03	10	:	:	:	:	:	:	•04	5.00	26.28	
	Kenley	IN.	.12	98.	22.		22.5	0).	96.	7		2	• 7	10.	:	.15	.30	.37	.25	.07	.55	:	.01	:	:	:	:	.02	•	:	÷0.	5.70	28.94	
	Kenley (Hazelea)	IN.	50.	.92	.72	:	92.	<u>e</u> 9.	68.	07.	:	:	:	:	:	.15	.28	.44	.17	90.	.50	.01	:	:	:	:	•	:	:	.01	60.	5.34	26.93	_
	-gailasW angd	IN.	. 12	889	62.	:	47·	89	1.04	01.	:	:	:	:	0.	.19	.42	.58	.21	-07	Fç.	.05	,.*	-05	.01	:	:	.01	.01	•05	.21	6.26	30.48	
	Chelsham	E.											• 1	Ðſ	V	9	ГX	нл	NO	м			,	-								5.43	28.75	
	Sevenoaks	IN.	.36	.55	.64	:	.71	22.	63	71.		•	•	•	90.	.55	.48	F9.	.25	•10	.45	.01	:	:	:	.03	:	:	:	:	•18	6.12	:	
	Chevening Park	in.	.18	.48	-92	-:;	¥2.	eq.	67. ac.	07		:	:	• 1	<u>.</u> 0	.36	.43	•59	.40	.15	-49	.03	0.	.13	:	٠:	:	:	:	:	90.	6.75	32.63	
	Knockholt (tower ga.)	IN.	10	.55	.73	- 6	.63	7.0.	1.01 1.6:	17		:	:	•	0.0	.28	.41	.65	•23	80.	•44	.01	:	:	:	•	:	•03	:	:	:	5.91	25.93	
	Knockholt (field gau.)	.NI		.57	94.	• !	29.	#G.	1.05	67	:	•	•		.03	•34	.45	19.	.23	.12	.50	•03	:	:	•	•	:	•04	:	•	:	6.38	30.48	
	madresternam (mwoT)	.N.	-14	.61	.80		.64	.03	.65	02		:	:	: :	.07	.16	64.	.63	.22	80.	•39	.03	:	:	.01	:	:	:	:	:	•18	5.84	29.31	
	Westerham (Hill Est.)	.N.	14	.53	-84		.61	2	1.01	01.		:	:	•	0.0	.22	.47	.64	•19	•10	·45	.03		.01	0	:	:	:	:	.02	•18	6.34	30.86	
	Caterbam	.0.	.15	67.	22.	. • 1	62.	70.	1.10	7		•	•	:	:	.50	.42	.58	.19	.07	.55	.03	:	.01	•	.01	:	:	:	.01	·15	6.32	29.13	
difference on the second	nobladO	.i.	.15	02.	.83	22.	104	40.	96.	91			:	:	:	:21	.38	.56	.18	20.	£ç.	.03	.01	•	:	:	:	:	:		.11	7.18	69.63	
-	Chipstead	.N.	60.	.51	.82	.01	999	09.	. 67	0.0		•	:	:	:	•16	.31	.37	.17	80.	89.	.03	:	.01	:	.01	:	:	:	.01	.12	5.68	29.18	
-	Merstham	N.	.20	99.	.91	: 1	6.7	₽¢. '	1.00	21:		• .	:	:	:	.12	.38	89.	.23	:	Lç.	.01	:	:	•	:	:	:	:	.02	90.	6.30	29.03	
and the construction of th	Upper Gatton	.05	.10	.41	.75	• 0	79.	.04 .0	68.	# :	:	:	:	. 1	.0	•14	.31	.54	.15	.05	.58	.03	.01	.03	.01	:	:	:	.03	:	.11	2.22	29.24	
I	liHətagiəA	in.	.12	.46	69.		09.	444		F.		:	:	:	:	.10	.56	.50	.50	90.	.52	.03	:	.01	•	:	:	0.	<i>,</i> :	:	60.	5.10	26.71	
	Buckland		_		.74	• !	24.	44.	9.65	3 :		:	:		.02	.15	.34	.65	.30	•03	.48	.02	:	.01	0.	:	:	:	:	:	80.	4.92	25.96	_
	South	.0.	.24	.49	.72	:;	64.	00 1	.11	:			:	• (	.02	.12	.30	09.	•23	.05	.43	.01	:	:	`.	.01	:	:	:	•	60.	4.84	24.52	_
(	Nutheld (newgauge	IN.	•23	.48	£2.	.01	.55	.43	8 8	9 :	:	:	:	• !	.05	.13	.33	.62	.21	•05	.47	.01	10.	.03	.01	.01	:	.01	.01	:	111	5.37	27.03	
	Nutfield (old gauge)	.03	.23	97.	82.	.01	.61	7.4.	97.	# .		:	:	. (	70.	60.	•28	.64	.22	.05	.41	.01	.01	01	.01	.01	:	.01	.01	:	.11	5.41	25.63 2	
(		.N.	.19	.48	08.	• 2	258	74.	67.	5 :		:	:	• 0	70.	.12	.30	99.	.21	90.	99.	0.5	.01	÷01	.01	.01	:	.01	:	•	.14	5.57	30.35 2	
		.iv.	•13	.35	.72	`• 6	20.20	99	% <del>-</del>	:	;		:	:	:	.13	.31	.46	60.	:13	.56	.03	:	:	:	:	:	:	:	:	.13	5.33	96.98	
	(rimer over)	.09	.16	.40	-64	• 6	683	000	.10	2 :	:	:	:	• 0	70.	.17	.29	.48	:13	-11	.53	.01	:	.01	• 1	.01	:	:	:	. •	.13	6.04	28.42 29.04 26.96	_
-	4.0 11	.06	91.	.45	88.	• 6	87.	20.	96.0	3:	;		:	•	• •	60.	.31	.48	80.	:	.72	:	*.	:		:	:	:	:	:	.13	5.75	8.42 2	-
1																																	S	

† The totals from January 1st.

29.81 28.

6.19

Daily Rainfall.

+ The totals from January 1st.

notgniqTO	IN.		.13	.27	.85		<b>.</b> 64	.61	96.	91.	:	•	•	:	•	.10	.25	.49	.12	Į.	.40	•	:	•		:	•		*	•	.05	5.10	26.34
Keston	IN.	.05	60.	•34	98.		.68	.49	1.05	23	•	:		•	:	.10	.56	.41	.55		.42	70.	:	ø.,	•		.05	.01	:	:	.05	5.38	27.95
Науев	IN.			.33	.65	:	.63	•44	06.	7	:		:			.10	.23	300	12	01.	.32	• (	70.	:	:	:	•	:	:	:	90.	4.58	24.44
West Wickham	ï.	.01	.12	.41	.81	:	.72	.63	1.03	eT.			:		.01	60.	.56	147	60.	91.	.43	•	:	:	•		70.	:	:	:	.04	5.44	27.10
Addington (tag.gmu's)	IN.	.01	.11	.42	.70	.01	99.	.59	06.	•14	:	:	:	:		.11	.27	44.	.56	60.	<u>c</u>	. 7		10.	:	:		.01	:	:	•04	5.23	26.83
notgnibbA slliH	IN.	.03	01.	.37	£9.	.01	.70	.51	08.	71.	• 6	Ō.	.01	:	.05	80.	.25	.36	.15	.07	.40	.01	.05	-01	. 1	.01	.01	.01	:	:	.03	4.72	25.38
Croydon (Avond rd.)	IN.	.03	.10	.31	.64		17.	67.	92.	200	:			.01	0.	60.	.58	.37	.12	80.	<u>c</u> <del>+</del> .	O	.01	.01	• 1	.01	*	.01		.01	÷0.	4.63	25.71
Croydon (Park Hill)	IN.	:	20.	.37	Lg.	.01	09.	.40	.73	90.	:	:	*	:	.01	.07	.23	.59	60.	20.			•	:			.01	:	*		.03	3.97	22.00
Croydon (Wob.rd.)	IN:		90.	•36	.55	:	£9.	.43	.72	70.		:		:	.03	.08	.23	.30	÷0.	60.	.35	:	:	:	:	:	:	:	:	:	.02	3.96	22.74
Croydon (Dup. H.)	IN.	.01	20.	.31	.58	:	02.	.46	47.	<u>,</u>	:	:	:	:	.03	80.	.25	•33	60.	20.	68.	0.	0.	10.	:	:	•	:		.01	.03	4.54	23.78
Croydon (Wn.W.rd.)	IN.	.01	20.	.32	99.	:	.73	67.	92.	7.0.	:	*	:	:	<b>.</b> 03	80.	.25	.30	80.	.10	-42	:	:	* (	10.	:	:	.01	*	:	.05	4.41	24.43
Oroydon (Brim. Bn.)	IN:	:	.05	.56	90.	:	.64	.43	¥2.	<u>ç</u> 0.	*	:		•	.02	90.	.22	.30	20.	60.	.32	:	:	•	:	:		:	:	:	.03	3.83	22.22
Bedding- ton	_	.01	90.	.24	.61	:	29.	.43	69.	20.	:	:	:	:	.03	60.	.56	:31	.07	20.	.38	:	:	:	:	:		.01	:	:	.03	4.01	23.04
aotgaillsW	IN.	.02	90	.27	£9.	.01	02.	.45	69.	90.	:	:	:	:	.03	60.	.26	.32	90.	90.	.37	.01	:	*	•	.01		.01	:	•	•04	4.15	23.50
Carshalton	IN.	.03	90.	.58	.58	:	29.	.41	.74	.0 <u>.</u>	:	:	:	:	.03	11	.20	.58	90.	.05	.35	.01	:	•		:	*	.01		:	:	3.89	50.66
Benhilton	IN.	•04	•05	:31	.62	:	99.	.39	89.	.03	:	*	:	. :	.01	.05	.21	.29	•04	.04	.30	:	:	:	:	:	:	.01		:	.03	3.65	19.56
Sutton (Sew.Wks.)	IN.	.05	90.	.32	.63		.62	.41	.71	.05	:	:	.03	0.	0.5	90.	90.	.38	80.	·0 <del>4</del>	.30	.01	.03	*		*	.05		:		.04	3.91	20.62
Sutton (Waterwk.)											-			No	TI	) I	S S	ıeı	av:	9													
Banstead	ik.	:	-07	.49	.73	:	9.	12.	.79	90.	:	:	:	:	.03	.12	.25	.35	.08	·11	.43	0.	:	:	.03	.01		•	:	.05	.15	4.89	25.43
Epsom	E.	•04	20.	.36	99.	.01	09.	24.	.72	.05	:	*	.01	:	.03	.10	.21	.33	-07	.05	.32	.01	.01	.01	:	.03		.02	1	.02	.10	4.27	22.44
ttodexO	IN.								ď	ISI	7910	) (	н	00	эч		• (	ія.	ΛΟ:	WI	ня	BA	EE	go								All controls of the controls of the controls of the controls of the control of th	
D'Abernon Chase	IN.		80.	.32	99.	:	£9.	.43	.62	.05	:			:	•04	80.	.22	.30	.10	•04	.27	:	:		:	:	:	.01		:	:	3.66	23.23
Leather- head	يْر.	.03	20.	.26	.72	:	02.	.50	62.	60.	:	:	:	:	•04	•10	.23	.39	80.	-02	88.	.03	:	:	:	:	.01	:	:	:	90.	4.53	23.10
Headley	IN.		.12	.37	.80	:	02.	£ç.	98.	11.	:	:		:	:	.10	.24	.40	80.	90.	.43	•	:	.03	:	:	:	:	:		.10	4.92	25.84
Витgh Неаth	K	90.	80.	.43	29.	.01	•64	.51	-74	.15	:	•	:	*	.03	.17	-24	.41	60.	.05	īç.	.03	.01	.01	:	:	.02		:	:	7	4.96	25.27
Purley	1	.01	11.	.31	.73	.01	.81	•54	1.02	.25	:	:	:	w.	.01	.12	.28	.35	.20	80.	14.	.01	.01	.01	:	.01	:	.01	:	0.	90.	5.45	28.20 25.27
OM to ysu	1	-	2	ന	4	70	9	1	00	6	10		12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	53	30	*	+

:::	.03	3.97
• • •	.05	4.07
::0	.04	4.08
::0	0.	3.93
io.	::	3.83
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	.05 .03 .03	4·39     4·97     4·08     3·81     3·87     3·92       23·95     24·45     22·90     21·78     22·25     20·79
	.05 .03 .03	4·39     4·97     4·08     3·81     3·87     3·92       23·95     24·45     22·90     21·78     22·25     20·79
:::	0. 80. 80. 20. 80. 20.	4.39         4.97         4.08         3.81         3.87         3.92           23.95         24.45         22.90         21.78         22.25         20.79
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Southwark Park		:	.05	.18	.44	•	.43	.49	.75	:	:	:	:	• 5	70.	#T.	82.	97.	200	996	9	:	:	:	:	:	:	:	:	.06	3	nc.s	18.61
Deptford	IN.	.01	20.	.26	.51	.01	•56	.45	.87	.03	:	:	:	• • •	20.	02.	67.	7.0	#0.	70.	7	7 5	TO.	:	:		TO.	:		300	2	4.10	21.76
Greenwich	IN.	0.	.07	.23	.55	:	.56	•44	.87	.03	:	:	•	: 5	1000	20.0	12.	900	C i	00.	ī	: 5	7 5	10.	•		TO.	:	:	.07	5 -	11.4	22.57
Telegraph Hill	IN.	:	80.	.21	.53	:	·45	.41	94.	•04	:	:	:	: ?	# O G	0 0	08.	20 0	00.	50.5	10	:	•	:	•	:	. 0	.03	:	:00	0.0	16.9	22.17
Cambe'well (Leytonsq.)	IN.	:	90.	.15	.41	:	.25	.31	.55	.03	•	:	:	: 5	10.	# 0	0 1	).T.	† o	#O.	3	•	•	:	:	:	:	:		90.	00.0	20.2	15.06
Cambe'wel (Town Ha.	IN.		90.	.13	.41	:	.32	.27	.41	.01	:	:	:	• •	TO.	OT.	17.	20 0	90.	co.	7	:	•	•	:	•		;	:	.10	200	cq.7	16.16
Cambe'wel (TheGreen	IN.	:	•	·14	.43	.01	.26	.40	29.	.03	:	:	:	• 5	10.	GT.	223	77.7	900	90.	3	•	•	:	:	:	*	:		:00	000	06.7	15.94
Battersea (Waterwk.)	IN.	:	.05	.14	.38		.42	.36	02.	:	:	:	•	• 5	TO:	OT.	62.	62.	00.	#O.	0	:	:	:		:	:	:	:		00	3.14	18.01
Battersea Park	IN.	.03	.07	•24	•54	:	-64	.52	.83	.03	:	:	:	• 60	00.	61	000	20 -	11.	70.	H	:		:	:	:	•	:	.00	90.	000	4.30	22.32
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Brockwell Park	IN.	:	.10	.26	.70	:	69.	:	1.10	.04	:	:	:	• 0	70.	#T.	18.	07.	20.	70.	00	:	:	:	:	:	:	•	:	.0.	0	4.07	25.01
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-gaimliW not	IN.	•03	.18	.30	09.	:	.58	.30	.81	90.	:	:	:	:	• 0	200	23.	7.00	90.	00.	77	10.	:	:	:	:	:	:	:	::	OT	3.98	20.85
quobi2	IN.	.01	.10	.26	.70		.59	.38	22.	60.	:	:	:	. (	0.0	000	97.	98.	14	90.	0.7	TO.	:	:	:	• 1	10.	:	:	:00:	00.	4.16	22.64
Forest Hill (Cemetery)	IN.	•01	90.	61.	.46		.49	.35	.45	•04	:	:		:	• 0	60.	-55	.21	.04	90.	62.	TO.	:	:	:	:		.01	:	90.	00.	2.98	16.60
fliH tastof (.br.O.noH)	IN.	•01	80.	.19	.55	0.1	.62	64.	06.	.05	:	:	:	• (	20.	77.	08.	.31	çņ.	80.	07	70.	10.	:	• 7	ŢŌ.	TO.	:	:	.00	00	4.16	22.56
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U. Norwood (Dul.W.Pk.)	IN.	60.	01.	26.	1 rč	)	.67	.46	.80	90.	:	:	:	:	• (	.12	.25	.30	90.	80.	77	10.	:	:	:		-05	•	:		co.	4.08	22.27 23.38 22.18
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4 The totals from January 1st.

#### NOVEMBER, 1906.

A most extraordinary month. It is one of the warmest and wettest Novembers for many years past. As showing the exceptional warmth, the observer at Nutfield mentions that roses, tropæolums, asters, zinnias, geraniums, calceolaria, alyssums, salvia, auricula, lobelia, primroses, and many others were in flower at the end of the month; and the observer at Abinger Hall, that thrushes and blackbirds are singing as in spring, and a red admiral butterfly was fluttering about in one of the rooms at Wallington; and the observer at Sanderstead says that the late chrysanthemums were in very good flower, and dahlias and nasturtiums and other very tender plants were not cut off by frost until the 11th-12th. The month has been unhealthy, diphtheria, scarlatina, and typhoid being prevalent, though slightly less so than in October, whilst catarrhal affections are very numerous. Slight snow fell on the 19th at Epsom, Upper Gatton, Nutfield, and Betchworth. Solar haloes were seen at Greenwich on the 2nd, 3rd, 6th, 12th, 16th, and 20th, at Epsom on the 3rd and 16th, and at Wallington, Benhilton, and Upper Gatton on the 16th; whilst lunar haloes were observed at Greenwich and Wallington on the 2nd and 30th, at Nutfield on the 5th, 27th, and 30th, at Epsom on the 27th and 30th, and at Sanderstead, Benhilton, and Beddington on the 30th. Auroral displays were noticed at Epsom on the 16th and 29th, and thunder was heard there on the 3rd and 7th, and sheet lightning seen there on the 4th and 28th. The rainfall varies between one and a half to two inches above the average. much fog during the month. The mean temperature of the month is between 2° and 4° above the average, and was at Croydon (Duppas House) 46°.4, at Wallington 45°.9, at Worcester Park 45°.7, and at Chipstead, Warlingham, and Epsom 45°.2. There were recorded at Wallington 31.9 hours of sunlight, which is 19 hours or seven per cent. below the November average of the twenty years 1886-1905.

> F. CAMPBELL-BAYARD, F.R.Met.Soc., Hon. Sec.

#### DECEMBER, 1906.

THE month has been, as a whole, dry, cold, and sunless. It has been unhealthy, influenza being especially prevalent, whilst there have in some parts been rather numerous cases of diphtheria and scarlet fever. During the few warm days in the middle of the month, a ladybird was seen indoors at Wallington on the 16th, and white moths in the Bute Road, Wallington, on the The snowstorm on the night of the 25th-26th was general throughout the district, but the depth varied greatly, being ten inches at Kenley, and only two and a half inches at Wallington. Snow also fell on the 27th, 28th, 29th, and 30th, with a slight amount on the 13th and 14th. The observer at Nutfield reports the fall of a very fine aerolite, about 6 a.m. on the 28th, in the south-west. Lunar haloes were reported from Greenwich on the 1st, 3rd (with paraselinæ), 4th, and 25th; from Epsom on the 1st, 2nd, 4th, 25th, and 31st; from Upper Gatton and Sanderstead on the 25th; and from Benhilton on the 31st. Lightning was observed at Upper Gatton and Epsom on the 12th. The rainfall of the month seems to be rather variable, being from about a quarter of an inch above the average to about half an inch below, a difference which is most probably due to the diverse averages, the places with the longest ones being over or slightly below their averages. The mean temperature of the month is between 1°.5 to 2°.0 below the average, and was at Wallington 37°.4, at Croydon (Duppas House) 37°·3, at Worcester Park 37°·0, at Epsom 36°·2, at War-There were recorded lingham 36°·1, and at Chipstead 35°·3. at Wallington 18.2 hours of sunlight, which is 19.6 hours or nine per cent. below the December average of the twenty years 1886-1905. This is the lowest December value since 1890.

> F. CAMPBELL-BAYARD, F.R.Met.Soc., Hon, Sec.

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Holmbert		IN.	: 5	10.		:::	60.		. F	:	80.	•04	.17		•24	.12	.01	.01	:	:	:	:	.07	.37	.05	.12	80.	.01	.29	•03	2.06	28.34
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Taganda A Line A	(old gauge)	ż		10.	60.	.13	.10	::	1 .		.10	.01	•19	.03	.27	.56	.05	.01	:	:	:	:	:8	.36	•04	01.	20.	.02	.56	90.	2.25	88
Tymdmol H olmbury 12 C Wash 12 C	(Linkfd.la.)	×	:	: 0	-04 -	.16	60.	::	1.:		.13	-03	.22	.01	67.	.30	• 6	.03	•	:	:	:	90.	.53	60.	.12	•14	.03	-36	20.		
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off to ved	Day of Mo.	<u>'</u>		VI C	י פו	4 70	9	<b>-</b> 0	0 0.	10	11	12	13	14	15	16	17	18	13	20	212	77	52.5	25	26	27	28	53	30	31	*	+

\* The figures in this row give the totals for the month.

† The totals from January 1st.

Daily Rainfall.

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Наууев	IN.	:			:	.13	90.	: [	11.		. 0	3	• 6	07.	• 0	77.	.11	:	:	:	:	:	:	• •	11	16.	• 6	60.	:		.23	:	1.62	56.06
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(Avond rd.)	IN.		:	.03	.01	.12	20.	• •	<b>T</b> -	*	1 •	0 0	GO.	ĥΤ.	• 6	.73	.12	.01	.01	:	:	:	:	1 •		04.	co.	01.	7	÷0.	.27		2.13	27.84 2
(Park Hill)	IN.	:	:	.01	;		90.	• • •	01.		• 5	# 6	.03	<i>)</i> .T.	. 0	07.	80.	.01	:	:	:	:	:	• 0	07.	40	<u>e</u> 0.	01.	.10	:	.27		1.86	23.86 27
(Vob.rd.)	IN.		:	.01	:	.12	90.	• 0	01.	:	• 5	200	#O.	91.	• ?	.51	·II·	.01	-01	:	:	:	:	• 0	60.	04.	.04	60.	.11	:	.56		.89	24.63 25
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(Vn. N. rd.) nobyoaD	IN.	:	:	.03	_	12		• 6	77.	:			#O.		• 0			• !		:	:	:	:	• 0	200	7.4.5	cn.	.10	.12	90.	.23		2.08	26.51 25.
(Brim, Bn.) Oroydon	H .	:	:	:	:	12	05	• 0	01	:			70.	_	* 1	_		*	:	:	•	:	:	:		04.0				:	56		1.77 2	
ton Croydon	N.	:	:	.03		.13	_	• 0	7.7	:	• A							• !	01	:	:	:	•	• t	_	_	-		-41	0.5	.58		1.99 1	03 23.99
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(TheDowns)

2003

RECORD CEASED.

RECORD CEASED.

24.49 

The totals from January

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21.

24.68

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85

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S 02

21

60 8

24.72

give the totals for the month The figures in this row

22.08 522

nommon ::: 82,24

E Streatham

Wandswth Heath

Putney E Kew

(CountyH.)

Kingston

Ringston

R Surbiton Molesey West

Esper Park Worcester Malden WeW

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(IlimbaiW)

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(Sew.Wks.)

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-gnimliW not	IN:	:	:	.01	:	60.	.03	:	.10	:	:	90.	.01	.27	.01	.18	.15	.01	:	:	:	:	:	• 0	.03	999	ZO.	80.	:	20.	.15	.03	1.64	22.49
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IliH tasroT (.br.O.noH)	IN.	•	:	•04	.01	•14	90.	•	•14	:	:	90.	.02	.22	:	.25	.19	:	•01	:	:	:	:	:	• ;	-14 -	.04	11	.07	90.	.30	90.	1.92	24.48
Horest Hill (.br.mrad)	IN.	:	:	.05	:	.12	:	:	•16	•	:	٠		.25		.25	.17	:	•	:	:	:	:		.03	715	70.	·04	.02	:	.20	•03	1.46	23.64
U. Norwood (Dul.W.Pk.)	H		.01	.03	.01	-	90.	:	.11		:	.03	.04	200			91.		:	:	:	:	:	:	60.	.36	.07	.10	.11	.07	.23	.05	2.11	25.49 23.64
West Norwood	IN.	:		.02	.01	.12	20.	:	.12	:	:	80.	.00	61.	1	.05	2 5		.01	:	:	:	:	:	60.	.35	90.	.13	-11	90.	.23	.05	2.15	24.42

\* The figures in this row oive the totals for the month.

+ The totals from January 1st.

## APPENDIX II.

### FALLS OF 1 INCH AND UPWARDS.

January 16th.—Knockholt (field gauge), 1·48 in.; Merstham 1·46 in.; Chevening Park 1·41 in.; Caterham 1·38 in.; Redhill 1·37 in.; Warlingham 1·36 in.; Chaldon 1·29 in.; Westerham (Hill Estate) 1·27 in.; Buckland and Purley 1·26 in.; Upper Gatton 1·24 in.; Nutfield (new gauge) 1·22 in.; Sevenoaks 1·21 in.; Westerham (Town) 1·20 in.; West Wickham 1·19 in.; South Nutfield 1·17 in.; Holmbury St. Mary and Reigate Hill 1·16 in.; Addington Hills 1·15 in.; Keston 1·12 in.; Abinger (The Rectory), Knockholt (The Tower), and Croydon (Avondale Road), 1·10 in.; Hedley 1·09 in.; Kenley (Place Fell), Wallington, and Croydon (Waddon New Road) 1·08 in.; Nutfield (old gauge), and Croydon (Brimstone Barn) 1·07 in.; Dorking (Denbies), Beddington, Addington (Pumping Station), and Orpington 1·05 in.; Croydon (Duppas House) 1·04 in.; Sanderstead and Croydon (Woburn Road) 1·03 in.; Croydon (Park Hill

Rise) and Bickley 1.02 in.; and Hayes 1.00 in.

June 28th.—Brockwell Park 2.60 in.; Kew 2.47 in.; Battersea Park 2.24 in.; Kingston (Sewage Works) 2.22 in.; Clapham Park 2.21 in.; Worcester Park 2.19 in.; Richmond and Putney Heath, 2.10 in.; Wimbledon (The Downs), 2.06 in.; Wallington and Wandsworth Common 2.05 in.; West Norwood 2.04 in.; Morden and Wimbledon (Sewage Works) 2.03 in.; Southwark Park 2.02 in.; New Malden and Surbiton, 2.00 in.; Sutton (Sewage Works) 1.98 in.; Battersea (Waterworks) 1.94 in.; Croydon (Waddon New Road) 1.92 in.; Croydon (Brimstone Barn) and Raynes Park) 1.90 in.; Nunhead and Greenwich 1.85 in.; Beddington Corner and Kingston (County Hall) 1.84 in.; Beddington and Deptford 1.83 in.; Upper Norwood 1.82 in.; Streatham 1.81 in.; Epsom 1.80 in.; Benhilton and Carshalton 1.77 in.; Forest Hill (Honor Oak Road) 1.76 in.; Banstead 1.73; Croydon (Duppas House), Croydon (Woburn Road), South Norwood, and West Molesey 1.72 in.; Anerley 1.70 in.; West Wickham and Keston 1.68 in.; Chislehurst 1.66 in.; Abinger (The Rectory), Leatherhead, Bickley, and Forest Hill (Dartmouth Road) 1.65 in.; Croydon (Avondale Road) 1.63 in.; Burgh Heath 1.61 in.; Kenley (Place Fell) 1.60 in.; D'Abernon Chase 1.59 in.; Croydon (Park Hill Rise) 1.58 in.; Purley

1.56 in.; Hedley 1.55 in.; Oxshott 1.54 in.; Bromley 1.53 in.; Eltham 1.51 in.; Telegraph Hill 1.49 in.; Chipstead 1.46 in.; Kenley (Hazelea) 1.45 in.; Holmbury St. Mary 1.44 in.; Abinger (The Hall), Addington Hills, and Bromley Common 1.42 in.; Hayes 1.41 in.; Beckenham 1.37 in.; Sanderstead and Addington (Pumping Station) 1.35 in.; Orpington 1.32 in.; Sidcup 1.31 in.; Dorking (Denbies) 1.30 in.; Chaldon 1.29 in.; Upper Gatton and Sevenoaks 1.28 in.; Dartford 1.27 in.; Esher 1.26 in.; Redhill, Warlingham, and Southfleet 1.25 in.; Reigate Hill 1.24 in.; Westerham (Hill Estate), Wilmington, and East Dulwich 1.22 in.; Caterham 1.15 in.; Camberwell (Leyton Square) 1.14 in.; Merstham, Chevening Park, Camberwell (The Green), and Camberwell (Town Hall) 1.12 in.; Westerham (Town) 1.10 in.; Buckland 1.08 in.; Knockholt (field gauge) 1.06 in.; Nutfield (old gauge) and South Nutfield 1.04 in.; Knockholt (Tower gauge) and Greenhithe 1.03 in.: Nutfield (new gauge) 1'00 in.

July 27th.—Orpington 1.57 in.; Putney Heath 1.18 in.; Knockholt (field gauge) 1.12 in.; Knockholt (Tower gauge)

1.08 in.; Chevening Park 1.07 in.

SEPTEMBER 4TH.—Kingston (Sewage Works) 1·49 in.; Morden and Kingston (County Hall) 1·30 in.; West Molesey 1·29 in.; Brockwell Park 1·28 in.; New Malden 1·21 in.; Wimbledon (The Downs) 1·16 in.; Wimbledon (Sewage Works) 1·13 in.; Streatham 1·10 in.; Clapham Park 1·07 in.; Wandsworth Common 1·06 in.; West Norwood 1·04 in.; Anerley 1·02 in.; Worcester Park 1·01 in.; Raynes Park 1·00 in.

OCTOBER 29TH.—Sevenoaks 2.24 in.; Knockholt (field gauge) 1.55 in.; Knockholt (Tower gauge) 1.50 in.; Southfleet and Dartford 1.40 in.; Chevening Park 1.39 in.; Wilmington 1.34 in.; Orpington 1.31 in.; Westerham (Hill Estate) and West Wickham 1.11 in.; Westerham (Town) 1.06 in.; Bromley

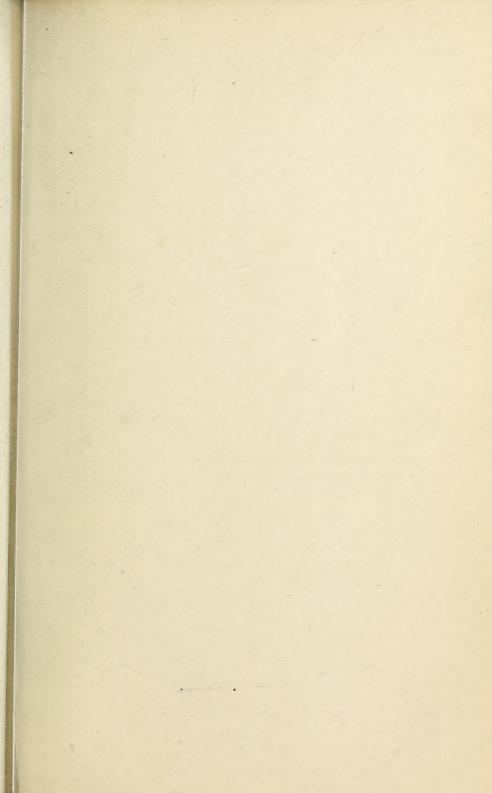
Common 1.01 in.

November 7th.—Bromley Common 1.01 in.

November 8th.—Holmbury St. Mary 1·19 in.; Caterham and Brockwell Park 1·10 in.; Knockholt (field gauge) and Keston 1·05 in.; Warlingham 1·04 in.; West Wickham 1·03 in.; Purley 1·02 in.; Westerham (Hill Estate) and Knockholt (Tower gauge) 1·01 in.; Merstham 1·00 in.

December 31st.—Banstead 1.22 in.





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# Croydon Hatural History and Scientific Society.

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